



K.L.E. SOCIETY'S
BASAVAPRABHU KORE ARTS, SCIENCE AND COMMERCE
COLLEGE, CHIKODI – 591 201.

Accredited at A+ Grade With 3.42 CGPA in 4th Cycle

Website: klesbkcollegechikodi.edu.in ☎ : 08338 – 272176 Email: kles_bkcc@rediffmail.com

2.2.1 Assessing the learning level of students and organizing programmes:

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7. Bone marrow is site of.....
a) WBC production
c) breakdown of RBC
b) RBC production
d) Production of blood cell
8. Skeletal muscle are found in
a) Heart
c) Biceps
b) blood vessels
d) intestine
9. The largest isolated single cell is
a) Egg of Ostrich
c) Egg of Duck
b) Egg of peacock
d) none of the above
10. Biomolecules having molecular weight less than one thousand Dalton are.....
a) Macromolecules
c) Micro molecules
b) Biomacromolecules
d) none of the above
11. The crevice /pocket of an enzyme in which substrate binds is called as.....
a) Active site
c) Allotropic site
b) inactive site
d) a and b
12. During cell cycle the DNA synthesis occurs how many times?
a) Once
c) many times
b) two
d) all the times
13. The 'X' shaped structure observed during diplotene are.....
a) Chiasmata
c) Bivalent complex
b) synoptonemal complex
d) none of the above
14. From one molecule of glucose during oxidative phosphorylation the gain of ATP is
a) 40
c) 34
b) 38
d) 30
15. Succus entericus is secretion of
a) Goblet cell and brush border cells
c) Goblet and chief cells
b) parietal and peptic cells
d) Oxyntic, peptic and goblet cells

16. Under normal condition what amount of O₂ is delivered by 100 ml of oxygenated blood?

- a) 5 mL
b) 4 mL
c) 3 mL
d) 2 mL

17. A chemosynthetic area found adjacent to the rhythm centre in brain is highly sensitive to the increased concentration of

- a) CO₂
b) O₂
c) H⁺
d) a and c

18. Left atrium receives blood from lungs through

- a) Pulmonary vein
b) Aorta
c) Pulmonary artery
d) vena cava

19. Atlas is

- a) 1st cervical vertebra
b) 2nd cervical vertebra
c) 1st thoracic vertebra
d) 2nd lumbar vertebra

20. Okazaki fragments are formed in the direction of

- a) 3' → 5'
b) 5' → 3'
c) 5' → 5'
d) 3' → 5'

21. In sugar phosphate backbone the sugars are linked together by

- a) Disulphide bond
b) ester bond
c) phosphodiester bond
d) none of the above

22. is considered as a connect ink link between reptiles and birds

- a) Archaeopteryx
b) Pterandon
c) Avimimus
d) Caudipteryx

23. How many different types of gametes may be produced by an organism with genotype

RrYy

- a) 1
b) 2
c) 3
d) 4

24. The phenomenon of permitting exchange of chromosome segment is called as

- a) linkage
b) crossing over
c) Mutation
d) segregation

25. One functional unit of gene which specifies synthesis of one polypeptide is know

- a) Recon
b) Muton
c) Codon
d) Cistron



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EST-1969

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Website: klesbkcollegechikodi.edu.in ☎ : 08338 – 272176 Email: kles_bkcc@rediffmail.com

DATE: 13/9/2022

DEPARTMENT OF ENGLISH

Induction Test 2022-23

TALENT LEVEL ASSESSMENT TEST (TLAT)

For English Opt. Students at Entry Level

Time: 30 Minutes

Max. Marks: 25

Name: Daneshwasi, A, Shedabale.

Roll No: 19

*Encircle the Correct Answer and fill in the blanks All the Questions are Compulsory.

1. Who wrote the play *Romeo and Juliet*?
a) Girish Karnad ~~b) Shakespeare~~ c) Mahesh Dattani
2. How many vowels are there in English?
a) 21 b) 26 ~~c) 05~~
3. Who has written 'voter'?

Ans. 

4. I will go to market (Name the tense of this sentence)
a) Past b) Present ~~c) Future~~
5. _____ is definite article.
6. That cannot be seen. (give one word substitution)
~~a) Visibal~~ b) Invisible c) Unseen
7. Ram is ideal king (identify the noun)
~~a) King~~ b) Ram c) ideal
8. She _____ (want/wants) to go school.
9. Give synonym for the word **Pretty**
~~a) Bad~~ b) stinking ~~c) Beautiful~~
10. Give antonym for the word create
a) Delete ~~b) Destroy~~ c) demolish
11. Deepa was acting in a very _____ way (child)
a) Ish ~~b) ed~~ c) ly
12. Who wrote Discovery of India?

a) Kuvempu b) Jawaharlal Nehru c) Tagore

13. Who has written '*The Gentleman of the Jungle*'?

a) B. C. Chatarjee b) Jomo kenyatta c) Kautilya

14. Who is the author of '*Wings of Fire*'?

a) APJ Abdul Kalam b) R. K. Narayan c) Kalidas

15. Find out the exclamatory mark.

a) ? b) : c) !

16. Who wrote '*War and Peace*'?

a) Girish Karnad b) Leo Tolstoy c) M. K. Gandhi

17. Who is author of Kanthapura?

a) Sri.Aurbindo b) Rajarao c) R. K. Narayan

18. Who is the first poet in Indian English Poetry?

a. Henry Derozio B. Nissam Ezekiel c) Girish Karnad

19. Who translated '*Mahabharata*' and '*Ramayana*' into English?

a) Rabindranath Tagore b) Vivekanand c) Sri.Aurbindo

20. Who wrote '*Ignited Minds*'?

a) APJ Abdul Kalam b) R. K. Narayan c) Kalidas

21. Who is known as 'Nightingale of India'?

a) Lata Mangeskar b) Sarojini Naidu c) M. S. Subbalaxmi

22. Who wrote '*My Experiments with Truth*'?

a) Shakespeare b) Girish Karnad c) M. K. Gandhi

22. Mark the conjunction.

a) and b) to c) an

23. Mark the pronoun.

a) you b) for c) from

24. Sonnet is a _____ line poem.

a) 16 b) 14 c) 18

25. Who is called the 'Shakespeare' of India?

a) Kalidas b) R. K. Narayan c) Rajarao



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25

**K.L.E. SOCIETY'S
BASAVAPRABHU KORE ARTS, SCIENCE AND COMMERCE
COLLEGE, CHIKODI-591201**

Department Of Economics

Talent Level Assessment/Induction Test 2022-23

Class: BA I

Total -Marks:25

Name Of the Student: AMAN L. MAKANDAR.

Marks Obtained:

Roll No: 04 ✓

01) The law of demand means?

- a) As the quantity dd rises, the price rises b) As the price rises, the quantity dd rises
c) As the price rises, the quantity demanded falls

02) _____ is the difference between total receipts and total expenditure.

- a) Capital deficit b) Budget deficit c) Fiscal deficit

03) The following is the direct tax among:

- a) House tax ~~b) Entertainment tax~~ c) Service tax

04) The new world Trade organization which replaced the GATT came into effect from _____

- ~~a) 1st January 1991~~ b) 1st January 1995 c) 1st April 1994

05) Who is the present governor of RBI?

- a) Shashikant Das ~~b) Urjit patel~~ c) D Subbarao

06) Who is the present finance minister of india ?

- a) Sumitra Mahajan b) Sushma Swaraj ~~c) Nirmala Sitharaman~~

07) What do you mean by under conditions of perfect competition in the product market?

- ~~a) MRP = VMP~~ b) MRP > VMP c) VMP > MRP

08) When RBI was establishe

- ~~a) 1/4/1935~~ b) 1/1/1935 c) 1/4/1945

09) Expand NITI aayog.

- a) National Institution for Transforming India ~~b) National Info for translating India~~
c) National Image for Transforming India

10) Expand NSSO.

- a) National Simple Survey Office ~~b) National Sample Survey Office~~
c) Natural Sample Survey Office

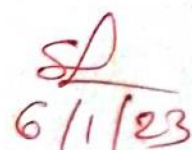
11) When national income is calculated with reference to a base year, it is called: a) Nominal national income ~~b) Net national income~~

- c) Real national income

12) Which of the following is known as long run average cost curve?

- a) Learning curve ~~b) Envelope curve~~ c) Equal product curve
- 13) Which market structure symbolizes the existence of 'few sellers'?
- a) Oligopoly b) Monopoly ~~c) Monopolistic competition~~
- 14) When GST is introduced in India?
- a) 1/7/2015 ~~b) 1/1/2017~~ c) 1/7/2017
- 15) Who is a Vice Chairperson of NITI aayog?
- ~~a) Dr. Rajiv Kumar~~ b) Amitab Kanth c) Shri Suman Bery
- 16) Who is the Father of Indian Green Revolution?
- ~~a) Dr. M.S. Swaminathan~~ b) C. Subramanya c) Kurain
- 17) "Operation Flood" is primarily concerned with:
- a) Flood control ~~b) Dairy development~~ c) Fisheries development
- 18) Agmark refers to:
- a) Industrial marketing b) Agricultural marketing ~~c) Capital marketing~~
- 19) Purchasing Power parity theory advocated by:
- ~~a) J.M. Keynes~~ b) Gustav Cassel c) Alfred Marshall
- 20) General Theory of Employment Interest and Money is the major work of:
- a) N. Kaldor b) Alfred Marshall ~~c) J.M. Keynes~~
- 21) What do you mean by the supply of goods?
- a) Stock available for sale b) Total stock in the warehouse
~~c) Quantity of the good offered for sale at a particular price per unit of time~~
-
- 22) The relation that the law of demand defines is.
- a) Income and price of a commodity ~~b) Price and quantity of a commodity~~
c) Income and quantity demanded
- 23) What do you mean by a mixed economy?
- a) Modern and traditional industries ~~b) Public and private sectors~~
c) Foreign and domestic investments
- 24) One of the methods to find out Mode is:
- a) Mode = 3 Median - 3 Mean b) Mode = 2 Median - 3 Mean ~~c) Mode = 3 Median - 2 Mean~~
- 25) Who is the 'lender of the last resort' in the banking structure of India?
- ~~a) Reserve Bank of India~~ b) State Bank of India c) EXIM Bank of India




6/1/23



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Date: 14/10/2022

DEPARTMENT OF BOTANY

INDUCTION TEST 2022-23

Class: B.Sc. I Semester

Date:

Name:

Total Marks : 20M

Roll No:

Marks Obtained:

Read the following questions and mark the correct answer.

1. Which of the following statements is not applicable to viruses?

- | | |
|---|--|
| a. The virus replicates in a bacterial host | c. The genetic material is DNA or RNA |
| b. The protein coat of a virus does not enter the host cell | d. Virus replicate autonomously in the absence of host |

2. Which enzyme is used to join nicks in the DNA strand?

- | | |
|-------------------|-----------------|
| a. Primase | c. DNA ligase |
| b. DNA polymerase | d. Endonuclease |

3. _____ are the non-essential parts of a flower

- | | |
|-----------------------------|-------------------------|
| a. Androecium and gynoecium | c. Sepals and petals |
| b. Sepals and carpels | d. Sepals and gynoecium |

4. _____ is an edible underground stem

- | | |
|--------------|-----------------|
| a. Potato | c. Sweet potato |
| b. Groundnut | d. Carrot |

5. What is the correct sequence?

- | | |
|---------------------------------|-------------------------------|
| a. Genus-species-order-kingdom | c. Species-genus-order-phylum |
| b. Species-order-phylum-kingdom | d. Kingdom-phylum-class-order |

6. Metabolism refers to

- | | |
|----------------------|------------------------------|
| a. Release of energy | c. Catabolism |
| b. Gain of energy | d. Gain or release of energy |

7. **Binomial nomenclature was given by**
- a. Linnaeus
b. Hugo De Vries
c. John Ray
d. Huxley
8. **Water is absorbed by**
- a. Root cap
b. Root apex
c. Root hairs
d. Root
9. **Smallest taxon of classification is _____.**
- a. Kingdom
b. Family
c. Variety
d. Species
10. **Genes of Tobacco Mosaic Virus are _____.**
- a. Double-stranded RNA
b. Single-stranded RNA
c. Double-stranded DNA
d. Proteinaceous
11. **Who is known as the "Father of Genetics"?**
- a. Morgan
b. Mendel
c. Watson
d. Bateson
12. **Double fertilization is the characteristic of**
- a. Algae
b. Gymnosperms
c. Fungi
d. Angiosperms
13. **Agar is commercially obtained from**
- a. Blue-green algae
b. Red algae
c. Brown algae
d. Green algae
14. **Elephantiasis is caused by _____.**
- a. Filarial worms
b. Flatworms
c. Tapeworms
d. None of the above
15. **The Golden Rice variety is rich in**
- a. Vitamin C
b. B-carotene and ferritin
c. Biotin
d. Lysine
16. **Which is a genetically modified crop?**
- a. Bt-cotton
b. Bt-brinjal
c. Golden rice
d. All
17. **Global warming can significantly be controlled by _____.**
- a. Increasing solid waste
b. Reducing water wastage
c. Burning human-generated waste
d. Reducing fossil fuel consumption
18. **Gobar gas plants use _____ bacteria**
- a. Methanogenic
b. Cyanogenic
c. Oncogenic
d. Pyogenic bacteria
19. **Which of the following food sources has the highest levels of vitamin C?**
- a. Parsley
b. Broccoli
c. Black currants
d. Orange juice
20. **Chlorofluorocarbon are nonflammable chemicals mainly used in _____.**
- a. Perfumes
b. Refrigerators
c. Air conditioners
d. All of the above



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13
20

Date: 31/10/2022

MATHEMATICS DEPARTMENT

TALENT LEVEL ASSESSMENT TEST (TLAT) :2022-2023

Time: 30 min

Max.Marks:20

Name: Bramhi S. Patil

Roll No: 07

1. The relation R on the set $A = \{1, 2, 3\}$ given by $R = \{(1, 1), (1, 2), (2, 2), (2, 3), (3, 3)\}$ is
 a) Reflexive b) Symmetric c) Transitive d) Equivalence
2. The principle value of $\sin^{-1}(\sqrt{3}/2)$ is
(a) $2\pi/3$ (b) $\pi/6$ (c) $\pi/4$ d) $\pi/3$
3. Total number of possible matrices of order 2×3 with each entry 1 or 0 is
(a) 6 (b) 36 (c) 32 d) 64
4. If $A = \begin{bmatrix} \cos \alpha & -\sin \alpha \\ \sin \alpha & \cos \alpha \end{bmatrix}$, and $A + A' = I$, then the value of α is
(a) $\frac{\pi}{6}$ (b) $\frac{\pi}{3}$ (c) π (d) $\frac{3\pi}{2}$
5. The area of triangle with vertices $(-3, 0), (3, 0),$ and $(0, k)$ is 9 sq. units. the value of k will be
(a) 9 (b) 3 (c) -9 (d) 6
6. The value of c in Rolle's theorem for the function, $f(x) = \sin 2x$ in $[0, \frac{\pi}{2}]$ is
a) $\pi/2$ (b) $\pi/4$ (c) $\pi/3$ (d) $\pi/6$
7. If $x^y y^x = 16$ then the value of $\frac{dy}{dx}$ at $(2, 2)$ is
 (a) -1 (b) 0 (c) 1 (d) None of these
8. Given $\int 2^x dx = f(x) + c$, then $f(x)$ is
(a) 2^x (b) $2^x \log_e 2$ (c) $\frac{2^x}{\log_e 2}$ (d) $\frac{2^{x+1}}{x+1}$
9. if $|a|=5$, $|b|=13$ and $|a \times b| = 25$, find $a*b$
 (a) ± 10 (b) ± 40 (c) ± 60 (d) ± 25

10. The principal value of $\cos^{-1}(\cos \frac{7\pi}{6})$ is equal to

- (a) $\frac{7\pi}{6}$ (b) $\frac{5\pi}{6}$ (c) $\frac{\pi}{3}$ (d) $\frac{\pi}{6}$

11. If $x = t^2, y = t^3$ then $\frac{d^2y}{dx^2} =$

- (a) $3/2$ (b) $3/4t$ (c) $3/2t$ (d) $3t/2$

12. $\int_0^4 3x dx$ equals

- (a) 12 (b) 24 (c) 48 (d) 86

13. What is the degree of differential equation $(y''')^2 + (y'')^3 + (y')^4 + y^5 = 0$

- (a) 2 (b) 3 (c) 4 (d) 5

14. $P(A \cap B)$ is equal to

- (a) $P(A) \cdot P(B|A)$ (b) $P(B) \cdot P(A|B)$ (c) Both a and b (d) None of these

15. The value of the expression $\sin[\cot^{-1}(\cos(\tan^{-1}(1)))]$ is

- (a) 0 (b) 1 (c) $\frac{1}{\sqrt{3}}$ (d) $\sqrt{\frac{2}{3}}$

16. If $\int \frac{1}{\sqrt{4-9x^2}} dx = \frac{1}{3} \sin^{-1}(ax) + c$ then the value of a is

- (a) 2 (b) 4 (c) $3/2$ (d) $2/3$

17. $\int \frac{1}{\sin^2 x \cos^2 x} dx$ is equal to

- (a) $\sin^2 x - \cos^2 x + c$ (b) -1 (c) $\tan x + \cot x + c$ (d) $\tan x - \cot x + c$

18. If N be the set of all-natural numbers, consider $f: N \rightarrow N$ such that $f(x) = 2x, \forall x \in N$, then f is

- (a) one-one onto (b) one-one into (c) many-one onto (d) None of these

19. The solution of $\frac{dy}{dx} = 1 + x + y + xy$ is

- (a) $x-y=k(1+xy)$ (b) $\log(1+y) = x + \frac{x^2}{2} + k$ (c) $\log(1+x) + y + \frac{y^2}{2} = k$ (d) None of these

20. The degree of the differential equation $\left[1 + \left(\frac{dy}{dx}\right)^2\right]^{\frac{3}{2}} = \frac{d^2y}{dx^2}$ is

- (a) 4 (b) $3/2$ (c) 2 (d) not defined

11 NOV 2022

K.L.E. Society's
Basavaprabhu Kore Arts, Science and Commerce College Chikodi
Department of Zoology
B.Sc I Semester DSC

Talent Level Assessment Test 2022-23

B.Sc I Semester DSC Zoology

Sl. No	R No.	Name of the student	PUC %	PUC Marks (600)	Biology Marks (100)	TLAT Marks (50)	Total (750)	%
1	10	Devaki Sanju Mugalakhod	71.11	427	87	16	530	70.66
2	11	Diya. Jameer. Manjrekar	90.66	544	76	28	648	86.4
3	14	Jummasha. S. Makandar	77	462	72	28	562	74.93
4	16	Kiran. G. Kamble	63.33	380	57	16	453	60.4
5	17	Laxmi. B. Sanadi	65.55	393	57	18	468	62.4
6	34	Samiya. S. Jamadar	81.5	489	77	22	588	78.4
7	36	Santosh.R. Waghmore	76.5	459	67	30	556	74.13
8	47	Srusti. A. Meeghannavar	72.33	434	72	16	522	69.6
9	50	Supriya. Nivruti Bane	59.16	355	163	22	540	72
10	76	Soundrya.T. Lokare	56.16	337	47	28	412	54.93

Based on PUC Marks and TLAT marks the class average is 70.38%. Students who have less than 70.38% are considered as slow learners and above this % are considered as advanced learners

HEAD

DEPARTMENT OF ZOOLOGY



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KLES'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201

11 NOV 2022

**K.L.E. Society's
Basavaprabhu Kore Arts, Science and Commerce College Chikodi
Department of Zoology
B.Sc I Semeter OEC**

Talent Level Assessment Test 2022-23

B.Sc I Semester OEC Zoology

Sl.No	R No.	Name of the student	PUC %	PUC Marks (600)	Biology Marks (100)	TLAT Marks (50)	Total (750)	%
1	4	Anand S Kondaguli	67.5	405	50	22	477	63.6
2	22	Nandini. S. Chavan	68.05	411	71	Absent	482	64.26
3	24	Nikhil. T. Devamane	53.16	319	60	18	397	52.93
4	30	Priti. M. Madeli	62.83	377	52	28	457	60.93
5	31	Priya. D. Patil	81.16	487	91	Absent	578	77.06
6	46	Srushti Suresh Kamble	69.16	415	70	Absent	485	64.66
7	54	Prashant. P. Bani	57	342	54	30	426	56.8
8	55	Sanjana. R. Hiremath	84.33	506	81	28	615	82
9	57	Arpita N Pujari	93.16	559	95	24	678	90.4
10	62	Manjunath. S. Chiloji	62	377	21	Absent	398	53.06
11	75	Shweta. T. Varute	70.16	421	64	26	511	68.13

Based on PUC Marks and TLAT marks the class average is 66.67%. Students who have less than 66.67% are considered as slow learners and above this % are considered as advanced learners

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DEPARTMENT OF ZOOLOGY



[Handwritten Signature]

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**KLE'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201**

11 NOV 2022

**K.L.E. Society's
Basavaprabhu Kore Arts, Science and Commerce College Chikodi
Department of Zoology
B.Sc I Semester DSC**

List of Slow learners 2022-23

Based on PUC Marks and TLAT marks the class average is 70.38%. Students who have less than 70.38% are considered as slow learners and above this % are considered as advanced learners

B.Sc I Semester DSC Zoology

Sl. No	R No.	Name of the student	PUC %	PUC Marks (600)	Biology Marks (100)	TLAT Marks (50)	Total (750)	%
1	16	Kiran. G. Kamble	63.33	380	57	16	453	60.4
2	17	Laxmi. B. Sanadi	65.55	393	57	18	468	62.4
3	47	Srusti. A. Meeghannavar	72.33	434	72	16	522	69.6
4	76	Soundrya.T. Lokare	56.16	337	47	28	412	54.93

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**KLES'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201**

11 NOV 2022

K.L.E. Society's
Basavaprabhu Kore Arts, Science and Commerce College Chikodi
Department of Zoology
B.Sc I Semester OEC

List of Slow Learners 2022-23

Based on PUC Marks and TLAT marks the class average is 66.67%. Students who have less than 66.67% are considered as slow learners and above this % are considered as advanced learners

B.Sc I Semester OEC Zoology

Sl.No	R No.	Name of the student	PUC %	PUC Marks (600)	Biology Marks (100)	TLAT Marks (50)	Total (750)	%
1	4	Anand S Kondaguli	67.5	405	50	22	477	63.6
2	22	Nandini. S. Chavan	68.1	411	71	Absent	482	64.26
3	24	Nikhil. T. Devamane	53.2	319	60	18	397	52.93
4	30	Priti. M. Madeli	62.8	377	52	28	457	60.93
5	46	Srushti Suresh Kamble	69.2	415	70	Absent	485	64.66
6	54	Prashant. P. Bani	57	342	54	30	426	56.8
7	62	Manjunath. S. Chiloji	62	377	21	Absent	398	53.06

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11 NOV 2022



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KLES'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201

11 NOV 2022

11 NOV 2022

K.L.E. Society's
Basavaprabhu Kore Arts, Science and Commerce College Chikodi
Department of Zoology
B.Sc I Semester DSC

List of Advanced learners 2022-23

Based on PUC Marks and TLAT marks the class average is 70.38%. Students who have less than 70.38% are considered as slow learners and above this % are considered as advanced learners

B.Sc I Semester DSC Zoology

Sl.No	R No.	Name of the student	PUC %	PUC Marks (600)	Biology Marks (100)	TLAT Marks (50)	Total (750)	%
1	10	Devaki Sanju Mugalakhod	71.11	427	87	16	530	70.66
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3	14	Jummasha. S. Makandar	77	462	72	28	562	74.93
4	34	Samiya. S. Jamadar	81.5	489	77	22	588	78.4
5	36	Santosh.R. Waghmore	76.5	459	67	30	556	74.13
6	50	Supriya. Nivruti Bane	59.16	355	163	22	540	72

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DEPARTMENT OF ZOOLOGY



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KLE'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201

11 NOV 2022

**K.L.E. Society's
Basavaprabhu Kore Arts, Science and Commerce College Chikodi
Department of Zoology
B.Sc I Semester OEC**

List of Advanced Learners 2022-23

Based on PUC Marks and TLAT marks the class average is 66.67%. Students who have less than 66.67% are considered as slow learners and above this % are considered as advanced learners

B.Sc I Semester OEC Zoology

Sl.No	R No.	Name of the student	PUC %	PUC Marks (600)	Biology Marks (100)	TLAT Marks (50)	Total (750)	%
1	31	Priya. D. Patil	81.16	487	91	Absent	578	77.06
2	55	Sanjana. R. Hiremath	84.33	506	81	28	615	82
3	57	Arpita N Pujari	93.16	559	95	24	678	90.4
4	75	Shweta. T. Varute	70.16	421	64	26	511	68.13

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DEPARTMENT OF ZOOLOGY



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Website: klesbkcollegechikodi.edu.in ☎ : 08338 - 272176 Email: kles_bkcc@rediffmail.com

Ref No.: EST 2022/23,

DEPARTMENT OF ENGLISH
Details of Slow and Advanced Learners 2022-23

Sl.	Roll. No	Name of Candidate	PU Marks	% PU	Specific Subject Marks at PU	TLAT Marks	Average %	Slow / Advanced
1	02	Miss AISHWARYA UDAY SHASTRI	552	92	80	19/76	82.66	AL
2	08	Miss ANUJA ASHOK MHETRE	552	92	81	21/84	85.66	AL
3	19	Miss DANESHWARI ANAND SHEDABALE	328	54.66	36	14/56	48.88	SL
4	32	Miss LAXMI HANUMANT NAVI	476	79.33	54	20/80	71.11	AL
5	36	Miss MALLIKA SHRISHAIL ASODE	527	87.33	90	21/84	87.11	AL
6	42	Miss NILAMBARI VIVEKANAND KATTI	306	51	64	14/56	57	SL
7	44	Miss POOJA RAMAPPA KAPALI	375	62.5	50	18/72	61.5	SL
8	45	Miss POOJA JAGADISH DHOLLE	418	69.67	67	19/76	70.89	AL
9	46	Miss PRACHI MARUTI JOGALE	406	67.67	64	20/80	70.56	AL

10	48	Mr	PRANAV SIDDAPPA KAMBLE	316	52	50	13/52	51.33	SL
11	49	Miss	PRERANA SUBHASH SHENDE	417	69.5	60	16/64	64.33	SL
12	50	Miss	PRIYA MAHAVEER JIRAGYAL	574	95.67	95	23/92	94.23	AL
13	82	Miss	USHA VIDYADHAR DANDINNAVAR	508	84.67	70	24/96	83.55	AL
14	83	Miss	VEENA PARASHURAM VARMA	333	65	41	15/60	55.33	SL
15	94	Miss	PRAJAKTA DINESH MEGHANNAVAR	309	51.5	55	21/84	63.5	SL
TOTAL Class Average								69.84	

15.10.2022

Out of 15 students, 07 are slow learners and 08 are advanced learners.


Teacher in-Charge


Head, Dept. of English
Head
Department of English


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Date :

**Department of Economics
List of Advanced Learners**


Students Performance in PUC Examination and Induction Test after Admission
B.A. First Semester- 2022-23

Sl. No	Roll No	Name of the Student	PUC %	Economics. Marks out of 100	Induction Test Marks out of 25	Grand Total	Average %	Remarks
01	04	Aman L. Makandar	69.33	74	21	95	76	AL
02	17	Bhuvaneshwari Gayakawad	77.66	83	21	104	83.2	AL
03	22	Dhanashri S. Pawar	79.5	82	20	102	81.6	AL
04	25	Jyoti S. Bhosale	62	85	20	105	84	AL
05	29	Keerti A. Ghorpade	62.83	74	20	94	75.2	AL
06	36	Mallika S. Asode	87.83	88	19	107	85.6	AL
07	39	Mayakka J.Devanagol	79	81	21	102	81.6	AL
08	55	Priyanka V. Patil	89.5	96	19	115	92	AL
09	56	Ramesh Khaggannavar	49.85	63	20	83	66.4	AL
10	65	Savitri A. Nandi	72.83	62	24	86	68.8	AL
11	66	Shivanand Patil	87	80	21	101	80.8	AL
12	72	Siddappa Khaggannavar	81.5	75	20	95	76	AL
13	76	Suraj M. Magadam	70	62	18	80	64	AL
14	82	Usha V. Dandinnavar	84.66	90	20	110	88	AL
15	85	Vivek R. Shastri	49.33	58	20	108	86.4	AL

Class Average 72.58 %
Advanced Learner 60 % and above


Head of the Department




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☎ : 08338 – 272176

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Date :

Department of Economics

List of Slow Learners

Students Performance in PUC Examination and Induction Test after Admission

B.A. First Semester- 2022-23

Sl. No	Roll No	Name of the Student	PUC %	Economics Marks out of 100	Induction Test Marks out of 25	Grand Total	Average %	Remarks
01	69	Shridhar Chanabasannavar	42.47	44	17	61	48.8	SL
02	71	Siddappa Harake	42.33	40	23	63	50.4	SL
03	81	Tanmay R. More	49.33	38	21	59	47.2	SL
04	86	Shilpa K. Shivaraj	40.33	36	20	56	44.8	SL

Class Average
Slow Learner

76.58%
60 %below


Head of the Department




Principal

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Email – kles_bkcc@rediffmail.com

Date :

Department of Economics

List of Student Slow Learners

Sl.No.	Roll No.	Name of the Student	Sign
01	69	Shridhar Chanabasannavar	
02	71	Siddappa Harake	S. Harake.
03	81	Tanmay R. More	T. More
04	86	Shilpa K. Shivaraj	S. K. H

Head of the Department



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DEPARTMENT OF BOTANY
INDUCTION TEST OEC 2022-23

Marks Sheet					
Sl.No.	Roll No.	Name	Marks Obtained(20)	II P.U.C. %	Average
1	10	Devki S. mugalakhod	9	71.16	40.08
2	11	Diya J. manjrekar	11	90.6	50.8
3	14	Jammasha S. makandar	10	77	43.5
4	17	Laxmi B. Sanadi	6	65	35.5
5	34	Samiya S. Jamadar	12	81	46.5
6	47	Srushti A. Meghannavar	10	72.3	41.15
7	76	Soundarya T. Lokare	4	56	30
Class Average			8.857142857	73.29428571	41.0757

Class Average	41.07
Total students appeared	7
Slow learners	3
Advanced learners	4

Advanced learners-4					
Sl.No.	Roll No.	Name	Marks Obtained(20)	II P.U.C. %	Average
1	11	Diya J. manjrekar	11	90.6	50.8
2	14	Jammasha S. makandar	10	77	43.5
3	34	Samiya S. Jamadar	12	81	46.5
4	47	Srushti A. Meghannavar	10	72.3	41.15

Slow learners-3					
Sl.No.	Roll No.	Name	Marks Obtained(20)	II P.U.C. %	Average
1	10	Devki S. mugalakhod	9	71.16	40.08
2	17	Laxmi B. Sanadi	6	65	35.5
3	76	Soundarya T. Lokare	4	56	30


HOD Botany
DEPARTMENT OF BOTANY


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DEPARTMENT OF BOTANY
INDUCTION TEST DSCC 2022-23

Marks Sheet

Sl.No.	Roll No.	Name	Marks Obtained(20)	II P.U.C. %	Average
1	4	Anand s. kondaguli	10	67.5	38.75
2	16	Kiran G. Kamble	4	63.33	33.665
3	22	Nandini S. Chavan	13	68.5	40.75
4	24	Nikhil T. Devmane	9	53.26	31.13
5	30	Priti M. Madelli	7	52	29.5
6	31	Priya D. Patil	8	82	45
7	36	Santosh R. Waghmare	8	76.5	42.25
8	46	Srushti S. Kamble	8	69.17	38.585
9	50	Supriya N. Bane	7	59.7	33.35
10	54	Prashant P. Bani	13	60	36.5
11	55	Sanjana R. Hiremath	11	84.33	47.665
12	57	Arpita N. Pujari	12	93.16	52.58
13	75	Shweta T. Varute	11	70.7	40.85
		Class Average	9.307692308	69.24230769	39.275


Class Average	39.27
Total students appeared	13
Slow learners	7
Advanced learners	6

Advanced learners-6

Sl.No.	Roll No.	Name	Marks Obtained(20)	II P.U.C. %	Average
1	22	Nandini S. Chavan	13	68.5	40.75
2	31	Priya D. Patil	8	82	45
3	36	Santosh R. Waghmare	8	76.5	42.25
4	55	Sanjana R. Hiremath	11	84.33	47.665
5	57	Arpita N. Pujari	12	93.16	52.58
6	75	Shweta T. Varute	11	70.7	40.85

Slow learners-7

Sl.No.	Roll No.	Name	Marks Obtained(20)	II P.U.C. %	Average
1	4	Anand s. kondaguli	10	67.5	38.75
2	16	Kiran G. Kamble	4	63.33	33.665
3	24	Nikhil T. Devmane	9	53.26	31.13
4	30	Priti M. Madelli	7	52	29.5
5	46	Srushti S. Kamble	8	69.17	38.585
6	50	Supriya N. Bane	7	59.7	33.35
7	54	Prashant P. Bani	13	60	36.5


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Website: www.klesbkcollegechikodi.edu.in

MATHEMATICS DEPARTMENT
PRACTICE FOR SLOW AND ADVANCE LEARNERS
2022-2023

Students have to think critically in all respective courses. Each student has their own thinking/IQ level. Courses which are required critical thinking always aim at helping students to improve their skills and also their IQ level through their learning and social activities. After admission at entry level, the department assesses the learning levels of the students and classifies the students as advance learner and slow learners. Later the department plan to organize special activities that can be conducted for advanced learners and slow learners. After admission to B.Sc first semester in Sept 2022, the details of the students noted down. We have categorized the students as slow and advance learners on the basis of


- 1) second PUC marks and
- 2) marks scored in mathematics subject
- 3) Marks scored in Induction Test.

The average of these three indicators is prepared. The students who are secured less than 71% are considered as slow learners and above 71% are considered as advance learners.

Some activities are conducted for advanced learners such as conducting class seminars/discussions, advised them to solve previous year question papers, guided for their future career and encourage them to participate in the various competitions: quiz, seminars and workshops.

For slow learners we advised them to practice some important theorems and guided them to solve the previous years question papers.




HOD
MATHEMATICS
B. K. College, CHIKODI


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DEPARTMENT OF MATHEMATICS

Slow and Advance Learner
(Year 2022-23)

Roll No.	Name of the student	II PUC %	II PUC Marks	II PUC Maths Marks	TLAT Marks	Average %	Remark
2	ADARSH D. JADHAV	72.66	436	74	04	71.38	AL
5	ARYA S. BHABUJE	72.66	436	64	05	70.13	SL
6	BHAGYASHREE V. MALAGE	74.33	446	77	07	73.61	AL
7	BRAMHI S. PATIL	95.66	574	100	13	95.41	AL
8	CHAITRA P. AKKENAVAR	80.33	482	85	08	79.86	AL
9	CHETAN J AIHOLE	65.5	393	61	04	63.61	SL
12	GAYATRI A .LOHAR	83.33	500	93	Ab	82.36	AL
13	HAFSA A. KAZI	62.5	375	40	08	58.75	SL
15	KESARALI M. ARAB	61.5	369	56	05	59.72	SL
19	MAHANTESH S. DHANG	60	360	58	06	58.88	SL
20	MANUPRIYA B. ADDEKKENAVAR	62.5	375	36	08	58.19	SL
23	NARASU B. DHAMAKE	79.66	478	81	08	78.75	AL
26	PALLAVI A. PATIL	78.83	473	68	09	76.38	AL
27	PRADNYA B. GHALI	75.5	453	85	06	75.55	AL
29	PREETI B. KATTIMANI	66.33	398	50	07	63.19	SL
32	SAHANA J. MADIHALLI	76.66	460	79	08	75.97	AL
37	SARASWATI S. MARADE	71.16	427	50	03	66.66	SL
40	SHWETA N. JADHAV	87.83	527	88	07	86.38	AL
44	SOUJANYA K. MORE	79.83	479	87	09	79.86	AL
45	SRUSHTI R. SAVADI	72.5	435	90	14	74.86	AL
48	SUNITA R. NAIK	80.33	482	77	06	78.47	AL
49	SUPRIYA C. KAMBLE	70.5	423	79	11	71.25	AL
53	KOMAL C. GANGALE	71.5	429	83	12	72.77	AL
56	JYOTI C. KOKANE	63.16	379	57	08	61.66	SL
60	ZAVERIYA I. SAYYAD	67.33	404	42	07	62.91	SL
63	SAKSHI A. AMBALE	60.5	363	52	07	58.61	SL
64	SHIFA M. MUJAWAR	90	540	97	06	89.30	AL

65	NEHA S. PATTAR	67.5	405	59	10	65.83	SL
69	SNEHA R. KOLI	50.5	303	35	07	47.91	SL
71	VIDYA K. KUMBAR	55.66	334	66	07	56.52	SL
73	AMAR M. BILAGE	74.66	448	79	08	74.30	AL
74	RANJITA S. KOLI	87.33	524	94	08	86.94	AL
77	MEGHANA P. MADRASI	59.66	358	55	08	58.47	SL
78	AMRUTA B. CHAVAN	74.66	448	78	07	74.02	AL
80	JYOTI A. CHAMPUR	85.5	513	85	06	83.88	AL

AL-Advance learner & SL-Slow learner



H. O. D.
MATHEMATICS
B. K. College, CHIKODI

PRINCIPAL
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Arts, Science and Commerce College
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Class : B.A. - I Sem

Subject : DSC English

No. in General Reg.	No.	Student's Name (Surname, Name and Father's Name)	18/11/22															ATTEN																	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15																		
	1	Danewari. A. Shedbale	1		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		
	2	Nilambari. V. Katti	0		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		
	3	Pooja. R. Kapali	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15				
	4	Branava. S. Kamble.	0		0		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15
	5	Prerana. S. Shende	1		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		
	6	Veena. P. Varma.	0		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		
	7	Prajakta. D. Meghannavar.	1		2		3		4		5		6		7		8		9		10		11		12		13		14		15				

* ADVANCED LEARNERS. *

		18/10/22	19/10/22	20/10/22	21/10/22	22/10/22	23/10/22
1.	Aishwarya. V. Shastri	1	2	3	4	4	5
2.	Anuja. A. Mhadre.	2	2	2	3	4	5
3.	Laxmi. H. Navi	1	2	3	3	4	5
4.	Mallika. S. Asode.	1	1	2	3	4	5
5.	Pooja. J. Dhalle.	1	2	3	4	4	5
6.	Prachi. M. Jogale.	1	2	3	4	5	6
7.	Priya. M. Jiragyal.	1	1	2	3	4	5
8.	Usha. V. Dandinavar.	1	2	3	4	5	6.

[Signature]
Teacher
In-charge

[Signature]
Head
Department of English

[Signature]
PRINCIPAL
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Question Paper solved by Student

CLASS
2022-23
B.Sc II sem (Dec)

Name - Surpriya, w. Bane.
Subject - Zoology
class - BSC II Sem
R.no - 50

I Answer any six of the following?

a) Name any two factors affecting enzyme catalyzed reaction

Enzyme activity affected by a variety of factors such as:

Temperature

pH

Concentration

b) What are the conjugated proteins? give ex

These are globular proteins a protein to which another chemical group is attached by the covalent compounds

Glycoproteins, metalloprotein

c) What is the glycogenolysis?

The breakdown of glycogen into glucose is called glycogenolysis

d) What is Deamination?

is the removal of an amino group from a molecule are called Deamination

It takes place primarily in the liver,

e) What is the cardiac cycle?

Cardiac cycle is defined as the succession of coordinated events taking place in the heart during each beat is called cardiac cycle

STUDENT'S NAME	
CLASS	
ROLL No.	DATE

II

Answer any three of the followings

Give an account of Classification & biological importance of Carbohydrates

Carbohydrates are classified into 3 classes.

- a) monosaccharide
- b) oligosaccharide
- c) polysaccharide

a) monosaccharide

These are the simplest carbohydrates with the free aldehyde or keto group has two or more hydroxy groups.
General formula $C_nH_{2n}O_n$

b) Oligosaccharides

The sugar compounds which on hydrolysis yield 2 to molecules of same or different monosaccharide.
General formula $C_nH_{20}O_{n-2}$

They are classified into 4 classes

- a) Disaccharides
- b) Trisaccharides
- c) Tetrasaccharide
- d) Pentasaccharide

c) Polysaccharides

The sugars which yield more than 10 molecules of monosaccharides on hydrolysis called polysaccharides. It is again divided into 2 types

They are classified into 2 classes

- a) homopolysaccharides
- b) heteropolysaccharides

* biological importance of carbohydrates

* Dietary oligosaccharides are an essential energy source. Fructooligosaccharides, in particular, are an important source of dietary fiber.

* The oligosaccharide component of the glycolipid determines the blood group antigen.

* Cellulose is the main constituent of supporting tissue of plant & forms a considerable part of our vegetable food.

* D-ribose is a component of many nucleosides and nucleotides & ribonucleic acid.

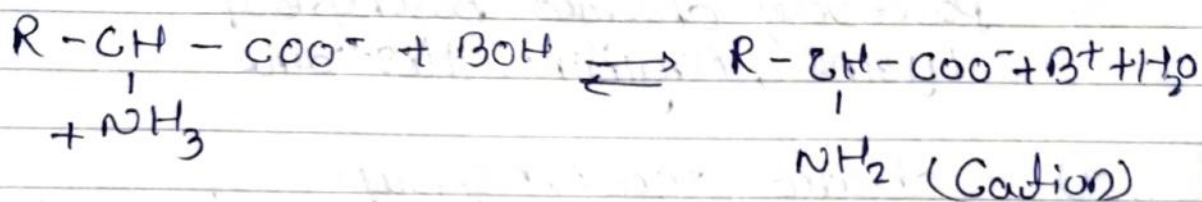
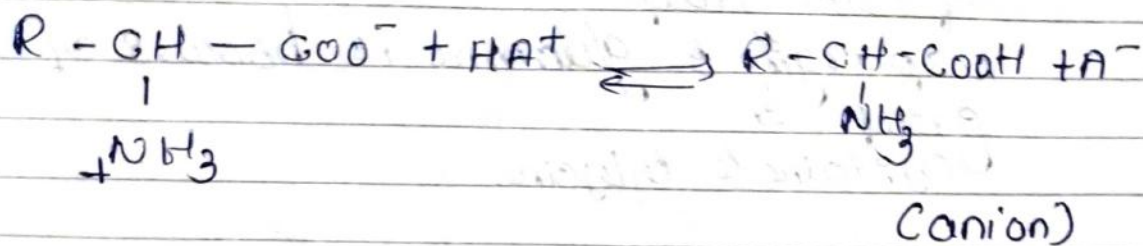
Give an account of general properties of α -amino acids.

All 20 of the amino acids are α -amino acids.

amino acids are building block of protein.

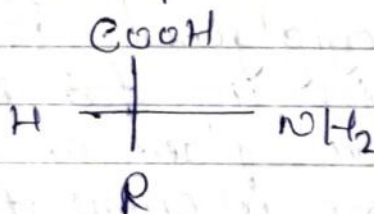
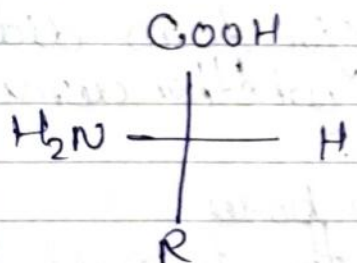
They are not just a structural component of protein. Each amino acid works their own specific work.

They are aliphatic in nature they work both acidic & bases.



* Isoelectric & zwitter ion: Being amphoteric in nature protein in exist in dipolar state called zwitterion.

Optical Activity: all proteins are levorotary



L-Amino acid

D-amino acid

Classification

① The amino acids are non-polar R group they have non-polar group of amino acid which is aliphatic hydrocarbon R group (Alanine, valine, leucine, isoleucine, proline) two with the aromatic rings (proline, tryptophan) & one which is sulfur. methionine.

② The amino acid with uncharged polar R group.

They are more soluble in water, serine, threonine, & tyrosine is because of -OH group.

Asparagine & glutamine is because of group & cysteine & glycine.

3) Positively charged base group
lysine, Arginine, Histidine

4) - charged acidic group
aspartic, glutamic acid they acid in nature

Define the biological significance of each
a) Triacylglycerol

Triacylglycerol is a major form dietary lipid in fat & oils whether derived from plant or animals
store in energy form in body

Calories are stored in the form of triglycerides in the liver & adipose tissue of the body.

b) Glycolipids

Glycolipids are lipids with a carbohydrate attached by a glycosidic bond.

Their role is to maintain the stability of the cell membrane and facilitate regulation which is crucial to the immune response and in the connections that allow cells to connect to one another to form tissues.

3) phospholipids.

phospholipids are compound lipids consisting of phosphoric acids nitrogen base alcohol and fatty acids.

It is the amphiphilic in nature. phospholipid membrane has a characteristic bilayer structure in the cellular membranes.

4) steroids.

A man-made version of chemical known as hormones, that are made naturally in the human body. Steroids are designed to act like these hormones to reduce inflammation.

Q) What are allosteric enzymes? Write a note on their kinetics and regulation of enzyme action.

Allosteric enzymes are enzymes that have an additional binding site for molecules other than the active site.

Enzyme kinetics is the study of the rates of enzyme catalyzed chemical reactions. In enzyme kinetics "the rate" is measured and the effects at one very concentration of the reaction are investigated. Studying an enzyme's kinetics in this way can reveal the catalytic mechanism of this enzyme, its role in ~~metabo~~ metabolism, how its activity is controlled and how a drug or a modifier might affect the rate.

STUDENT'S NAME	
CLASS	
ROLL No.	DATE

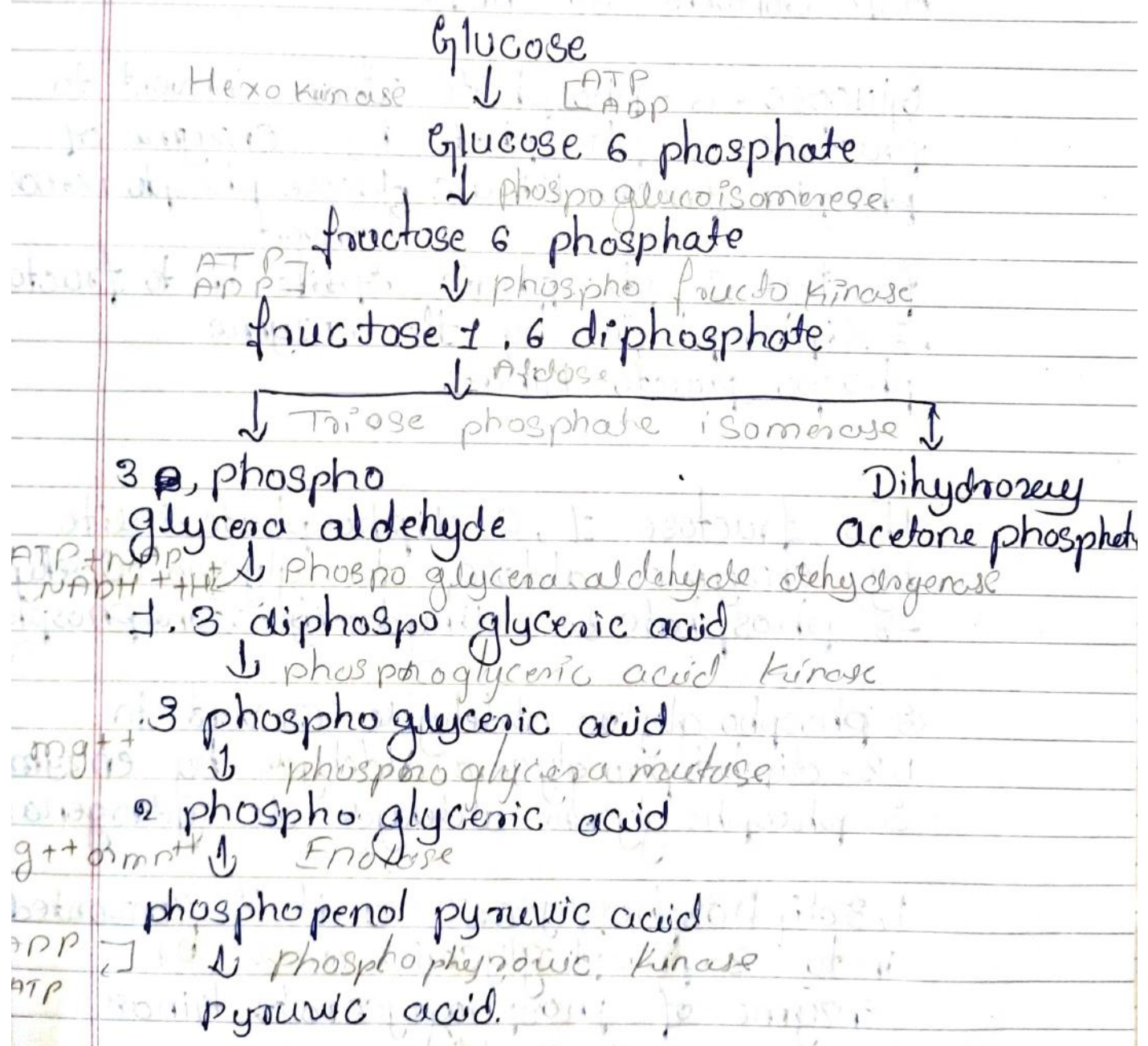
III

Answer the followings

Describe the process of glycolysis.
 Glycolysis is a process by which glycogen or glucose or other sugar converted into pyruvic acid.

This process occurs in the cell

This is an anaerobic process does not require O_2



Basavaprabhu Kore Arts,

Science and Commerce college

CHIKODI-2022

Name :- Kavita Ganapati Jadhav

Roll No. :- 40

Class :- BSc-II semester

Subject :- Zoology (OEC)

Date :- 23-08-2022.

————— * —————

* Parasitic Arthropods

General characteristics

- * Jointed legs (appendages)
- * Segmentation of Body.
 - a) Head
 - b) Thorax
 - c) Abdomen
- * They possess hard exoskeleton.
 - a) Crustaceans
 - b) Arachnids
 - c) Insects
- * Arachnids they measure around 3-5 mm
- * Living upon feeding on the blood of host
- * Distributed and they prefer warmer climatic conditions.
- * Hard tick
 - 1) Hard tick
 - 2) Soft tick
- * Locate the host based on the odour
- * Ticks have four stages in their life cycle.
 - 1) Egg
 - 2) Larva
 - 3) Nymph
 - 4) Adult

* Life cycle of Hard tick

- * Female detached from the host
- * Female lays eggs in a sheltered spot it dies.
- * Weeks or months the egg hatched and larva comes out

- * Six legged larva
- * Larvae are motile in nature will climb up the stems of plants/trees
- * Larva undergo moulting and their is development of Nymph.
- * After acquiring blood meal of host Nymphs undergo moulting and become sexually mature.
- * Sexually Mature adult remain on the host for feeding as well as Mating.

* life-cycle of soft ticks

- * Soft tick find for host that are at the low-lying vegetation.
- * Nest parasites and live in burrows.
- * feed on the blood meal of the host
- * able to lay less than 500 eggs per cycle
- * Nymphs undergoes 2-7 cycle of feeding they undergo moulting
- * The last moult leads to a sexually mature adult
- * The adult is non feeding in nature and blood meal for gametogenesis

IV semester B. Sc (NEP) degree examination October-2023

DSC Zoology

Gene technology, Immunology and Computational biology

Time: 2 Hours

Max. Marks: 60

Instructions to candidates

1. Answer all questions
2. Draw diagrams wherever necessary

I. Answer any Six of the following:

(6X2=12)

1. What is recombinant DNA?

Ans: Recombinant DNA technology comprises altering genetic material outside an organism to obtain enhanced and desired characteristics in living organisms or as their products. Basically, this process involves the introduction of a foreign piece of DNA structure into the genome which contains our gene of interest. This gene which is introduced is the recombinant gene and the technique is called the recombinant DNA technology.

2. What are transgenic animals?

Ans: An animal that has stably incorporated engineered DNA into its germ-line. Such an organism is able to pass the transgene on to all the offspring. Example transgenic cow, transgenic fish.

3. Define Immunity.

Ans: Immunity is the ability of an organism to resist infections by pathogens or state of protection against foreign organisms or substances. The immune system is essential for maintaining the body's health and defending against infections and diseases.

4. What are Antigens and Antibodies?

Ans: Antigens : Antigens are molecules that are foreign to the body and generally induce an immune reaction in the form of the production of antibodies against them.

Antibodies: Antibodies, also known as immunoglobulins, are proteins produced by lymphocytes as a result of interaction with antigens. Antibodies are a part of the humoral immune of the adaptive immune system where each antibody identifies a specific antigen and protects the body against it.

5. What is Immunization?

Ans: Immunization is the process whereby a person is made immune or resistant to an infectious disease. It enables the body to better defend itself against diseases caused by certain bacteria, or viruses.

6. Define Bioinformatics.

Ans: Bioinformatics is conceptualising biology in terms of molecules like DNA, RNA and protein and applying "*informatics technique*" to understand and organise the information associated with these molecules, on a large scale.

7. Define Arithmetic mean.

Ans: Arithmetic Mean represents a number that is obtained by dividing the sum of the values of a data set by the total number of values

8. Expand ANOVA

Ans: Analysis Of Variance

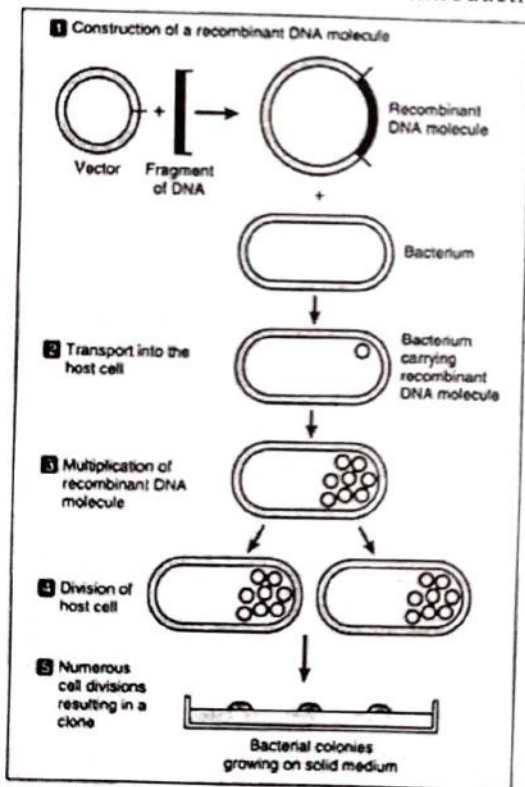
II. Answer any Three of the following:

(3X4=12)

9. Describe steps involved in r-DNA technology.

Ans: 1. Isolation of donor DNA fragment or gene: At first a donor DNA fragment is isolated. Then it is treated with restriction endonuclease enzyme: the enzyme restriction endonuclease is a key enzyme in molecular gene cloning. It has specific restriction site for its action. The enzyme RE generates a DNA fragment

2. Selection of suitable cloning vector: When donor DNA fragment is incorporated into a host cell, it will not replicate because the isolated gene do not have the capacity to replicated itself. So before introduction of donor fragment into host, a suitable vector should be selected. Examples Plasmid



3. Incorporation of donor DNA fragment into vector: The plasmid vector is cut open by the same RE enzyme used for isolation of donor DNA fragment. The mixture of donor DNA fragment and plasmid vector are mixed together. In the presence of DNA ligase, base pairing of donor DNA fragment and plasmid vector occurs forming recombinant vector in the mixture

4. Transformation of recombinant vector into suitable host: The recombinant vector is transformed into suitable host cell. i.e. bacterial cell. It is carried by following different techniques like electroporation, calcium mediated gene transfer etc.

5. Isolation of recombinant cell: The recombinant host cell is then grown in culture media but the culture may contains colonies both recombinant cell and non-recombinant cell. For isolation of recombinant cell from non-recombinant cell, marker gene of plasmid vector is employed. For examples, PBR322 plasmid vector contains different marker gene

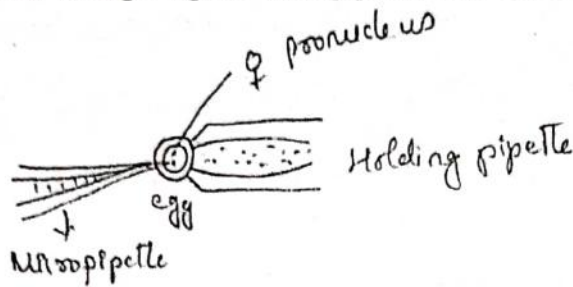
Ampicillin resistant gene and Tetracycline resistant gene.

6. Multiplication/Expression of the Introduced Gene in the Host: In this step the transformed host cells are introduced into fresh culture media which provide them rich nourishment followed by an incubation in the oven at right temperature. At this stage the host cells divide and re-divide along with the replication of the recombinant DNA carried by them.

During this, if gene library is to be generated then numerous copies of clones are obtained otherwise it is simply allowed for expression of products

10. Write a note on direct method of Gene Transfer Technique.

Ans: Microinjection: Microinjection is a technique of delivering foreign DNA into a living cell through a glass micropipette. One end of a glass micropipette is heated until the glass becomes somewhat liquified. It is quickly stretched which form a very fine pipette attains to about 0.5mm diameter which resembles an injection needle.



The process of delivering foreign DNA is done under powerful microscope. Cells to be microinjected are placed in a container.

A holding pipette is placed in the field of view of the microscope. The holding pipette holds a target cell at the tip when gently sucked. The tip of the micropipette is injected through the membrane of the cell. Contents of the needle are delivered into the cytoplasm and empty needle is taken out.

Applications:

1. Gene transfer to embryonic cells
2. In immature embryo, pollen, meristem, isolated ovules of plants
3. To get transgenic animals like mice, chicken, cow, pigs and sheeps

11. Write a note on Transgenic cow and fish.

Ans: Transgenic cows: Transgenic cows are genetically modified (GM) cows. They have an extra gene or genes inserted into their DNA. The extra gene may come from the same species or from a different species. The extra gene (transgene) is present in every cell in the transgenic cow. However, it's only expressed in mammary tissue. This means that the transgene's protein will only be found in the cow's milk and can only be extracted from there.

Method: First, the gene for the desired product is identified and sequenced. Then a gene construct containing this desired gene is created using DNA cloning, restriction enzyme digests and ligation.

The gene construct is then introduced into female bovine (cow) cells by transfection. Transgenic bovine cells are selected and fused with bovine oocytes that have had all of their chromosomes removed. Once fused with the oocyte, the transgenic cell's chromosomes are reprogrammed to direct development into an embryo, which can be implanted into a recipient cow. After a 9-month gestation period, a female calf is born. She will only express the transgene in her milk during lactation after her first calf is born. This is because expression of the transgene is controlled by a promoter specific to lactating mammary cells.

Transgenic herds live on special farms with their own milking sheds. They are kept separate from regular herds. Transgenic cows look identical to normal cows. Researchers use ear tags and microchips to identify transgenic cows and their calves.

Transgenic Fish: A transgenic fish is one that contains genes from another species. A transgenic fish is an improved variety of fish provided with one or more desirable foreign gene for the purpose of enhancing fish quality, growth, resistance and productivity. Development of transgenic fish has focused on a few species including salmon, trout, carp, tilapia and a few others.

Transgenic Fish may be better used for the following purposes:

- (1) For increasing fish production to meet the growing demand of food due to increase in world population.
- (2) For production of pharmaceutical and other industrial products from piscine origin.
- (3) For development of transgenic native glow fish varieties for aquarium.
- (4) As fish biosensors for monitoring aquatic pollution.

12. Write the applications of Biosensors in Gene Therapy.

Ans: 1. Food Processing For detecting pathogens from food biosensors are used. If *Escherichia coli* is present in vegetables, then it indicates contamination (faecal) in food. In dairy industry enzymatic biosensors are employed. Updike and Hicks in 1967 first reported enzyme-based sensor. On the method of immobilization enzyme biosensors have been divided (i.e. ionic bonding, covalent bonding and enzymes adsorption by van der Waals forces).

2. Fermentation Process For monitoring the presence of antibody, biomass, enzymes, products or byproducts, for measuring (indirectly) the process conditions biosensors are utilized. Because of its easy automation, low prices, simple instrumentation and formidable selectivity biosensors control the fermentation industry and produce reproducible results. In the process of ion exchange retrieval biosensors are also applied, where detection of change of biochemical composition is carried out. In online monitoring of fermentation process biosensors have attracted a lot of attention in the past years, due to its quick response and simplicity.

3. In medical field Biosensors are growing rapidly the field of medical science. In clinical applications, for diagnosis of diabetes mellitus glucose biosensors are widely used. Diagnosis of urinary tract infection (UTI) with anti-microbial susceptibility and pathogen identification which is promising biosensor technology is under study. For early stage detection of human interleukin (IL), biosensor based on hafnium oxide (HfO_2) has been used. Other application of biosensors is: immunosensor array for clinical immunophenotyping of acute leukemia, effect of oxazabor-olidines on immobilized fructosyltransferase in dental diseases, effect of oxazabor-olidines on immobilized fructosyltransferase in dental diseases.

4. Fluorescent biosensors They are imaging agents which are used for discovery of drugs and cancer. These biosensors can probe metabolites, protein biomarkers and ions with great sensitivity and can also detect the activity, status or presence of the target (cell extracts, serum) in complex solution. In programs of drug discovery, they are used for the identification of drugs by high throughput, for post-screening analysis of optimization and hits of leads high content screening approaches. For early detection of biomarkers in clinical and molecular diagnostics, fluorescent biosensors are used which monitors disease

progression and response to treatment/therapeutics for image guided surgery and intravital imaging

III. Answer any Three of the following:

(3X4=12)

13. Explain Acquired Immunity.

Ans: Acquired or Adaptive Immunity: Adaptive immunity is a more specialized form of immunity that develops after exposure to specific pathogens or antigens. It takes time to mount a response but provides long-lasting protection against those specific pathogens.

Types of adaptive immunity:

a. Natural acquired active immunity:

- Following the entry of pathogens or antigens into the body by natural process, immune system of host body produces antibodies and cytotoxic cells to get rid of pathogens.
- Subsequent to recovery some of the antibody producing the plasma and cytotoxic cells are retained as memory cells, which provide immunity to same pathogen in later period. The acquired adaptive is long-life or maybe lost after few years.

b. Natural acquired passive immunity:

- If antibodies produced by an individual (donor) in response to a pathogen are naturally transferred to other individual (recipient), the recipient develops the immunity.
- In this process, the recipient acquire immunity without the involvement of their own immune system. The immunity acquired by the babies through natural transfer of antibodies from mother via placenta and breast milk is the best example for this type of immunity.
- These maternal antibodies remain with the child for about three or six months or even 12months to 15months.

14. Write a note on Antigen Presenting Cells (APCs).

Ans: Antigen Presenting Cells are a heterogenous population of leucocytes that display antigen bound by Major Histocompatibility Complex (MHC) proteins on its surface.

- Through antigen presentation they play a key role in the immunological reactions.
- They are found primarily in the skin, lymph nodes, spleen and thymus.
- The migration of dendritic cells (DCs) to lymph nodes is important to the establishment of the immune response.
- The chemokine receptors present on the dendritic cells help in their movement towards their precise regions.
- When they get activated with the antigen, they start migrating towards the T cells for presenting the antigen. When they reach the T cells, they present the processed antigen to the T cell for further action.

15. Explain the properties of Antigens.

Ans: Properties of Antigen

1. **Foreign Nature:** All antigens that induce an immune response in the host are foreign to the body of the recipient. The host body recognizes the antigen to be different from the normal body components. The immunogenicity of the antigen increases with the increase in the degree of foreignness.

2. Chemical Nature: The most potent and commonly encountered antigens are proteins followed by polysaccharides. However, other molecules like lipids and nucleic acids can also act as antigens when complex with proteins and polysaccharides.

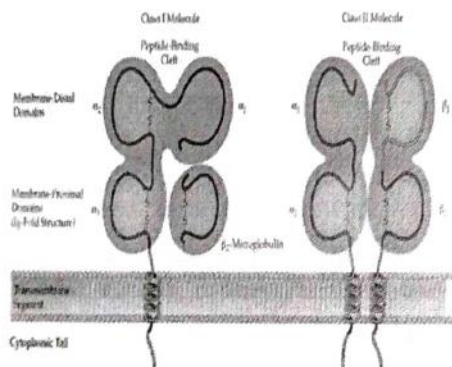
3. Molecular Size: The molecular size of the antigens is also crucial in the immunogenicity of the molecules. It has been established that antigens should have a minimum size of greater than 5000 Da before they can be considered immunogenic.

4. Molecular Rigidity and Complexity: The rigidity and complexity of molecules are essential factors that determine immunogenicity. In general, rigid molecules are good antigens as they can raise antibodies to certain structures when compared to the less rigid ones.

5. Antigenic Determinants and Cross-reactivity: Antigenic determinants are regions in an antigen molecule that is involved in the reaction with antibodies. Usually, antigens with two or more antigenic determinants can induce antibody production. Thus, a smaller antigen usually doesn't induce antibody production as it is not possible for a small molecule to have more than one antigenic determinant.

16. Write a note on MHC I and MHC II (Major Histocompatibility Complex).

Ans: Major histocompatibility complex (MHC) is the cluster of gene arranged within a long continuous stretch of DNA on chromosome number 6 in Human which encodes MHC molecules. MHC molecule is a cell surface glycoprotein receptor present in APCs and acts as antigen presenting structure. It plays vital role in immune recognition, including interaction between T cells and other cell types.



MHC class-I:

Class-I MHC gene encodes glycoprotein molecule which expressed on the surface of all nucleated cells and platelets. MHC-I molecule contains a 45KDa α -chain associated non-covalently with a 12KDa β_2 microglobulin molecule. Association of α -chain and β_2 microglobulin is required for expression of class-I MHC molecule on cell membrane.

α -chain of MHC-I: The α -chain is a transmembrane glycoprotein encoded by polymorphic gene within A, B and C region of Human HLA complex. The α -

chain is anchored in the plasma membrane by its hydrophobic trans-membrane segment and hydrophilic cytoplasmic tail. α -chain is made up of 3 domains (α_1, α_2 and α_3). Each domain containing approximately 90 aminoacids, a transmembrane domain of about 25 hydrophobic aminoacids followed by short stretch of charged (hydrophilic) aminoacids of cytoplasmic tails of 30 aminoacids. α_1 and α_2 domains interacts to form a deep groove on the top which is a peptide binding cleft. It can binds antigen of 8-10 aminoacids long.

α_3 and β_2 are organized into β -pleated sheets, each formed by antiparallel β -strand of aminoacids, this structure is known as immunoglobulin fold. Because of this structure α -chain and β_2 microglobulin are classified as member of immunoglobulin super-family receptor.

β_2 microglobulin of MHC-I: β_2 microglobulin is a protein encoded by a highly conserved gene located on different chromosome. β_2 microglobulin is similar in size and organization to α_3 domain. β_2 microglobulin does not contain transmembrane region and is non-covalently linked with α -chain.

Functions of MHC class I: Major function of MHC-I is to bind peptide antigens and present to CD8+ T cells (T helper cells). CD8 T cells are specific for MHC-I antigen. MHC-I binds endogenous antigen and present to T helper cells.

MHC class-II:

Class-II MHC is the glycoprotein molecule expressed primarily on antigen presenting cells such as macrophages, dendritic cells and B-cells.

MHC-II molecules contains two different polypeptide chains, 1 33 KDa α -chain and 28KDa β -chain which are associated by non-covalent interactions.

α -chain and β -chain of MHC-II: α -chain and β -chain of MHC-II is a membrane bound glycoprotein that contains external domains, atransmembrane segment and acytoplasmic tail.

α -chain and β -chain are made up of two domains (α_1 and α_2) and (β_1 and β_2) respectively. The peptide binding cleft is a open ended groove formed between α -chain and β -chain at proximal end. The cleft can bind antigenic peptide of 13-18 aminoacids long.

IV. Answer any Three of the following:

(3X4=12)

17. Write about Innate Immunity.

Ans: Natural or Innate Immunity: Innate immunity is the first line of defence against infections and is present from birth. It provides immediate, nonspecific protection against a wide range of pathogens.

- It is a pre-existing and natural defence mechanism inherited from parents to offspring. Since it is natural and pre-existing, it is not specific for any particular pathogen.
- Elements of innate immunity include:
 - a) First line of Defence (Anatomical and mechanical)
 - It is a protection provided by anatomical and mechanical barriers. Skin, surface mucosal linings of GI tract, urinogenital tract, and respiratory tract are considered as anatomical barriers.
 - Mechanical actions such as coughing, sneezing, peristaltic movements etc..., are the mechanical barriers that obstruct the pathogen entry into the body.
 - **Skin:** The impermeable nature of skin with epidermis and dermis and low pH due to sebum secretions from the sebaceous glands prevents the entry and growth of most micro-organisms.
 - **Mucus membrane:** The mucosal lining of respiratory, urinogenital, GI tract etc..., open to the external environment prevents adherence of microbes to the epithelial layers by trapping them in their sticky substance called **mucous**. The movements of cilia present on epithelial membrane of respiratory tracts helps in the removal of microbes trapped in mucus.
 - **Mechanical actions:** Mechanical actions like coughing, sneezing, peristaltic movements etc, help in driving out the foreign agents from respiratory and digestive tracts of animals.
 - b) Second line of Defence
 - The action of certain physiological and biochemical barriers like temperature, pH etc, substance such as enzymes of complement system, natural antibodies like blood group antibodies, and phagocytic cells present in body fluids provide second line of defence.
 - An alteration in the body temperature affects the growth of microbes.
 - pH of surrounding also influences the growth of microbes, for example presence of microbes is almost nil in the stomach due to the presence of gastric acid – HCl.

Hydrolytic enzymes found in Saliva, tears, breast milk can kill microbes and work as anti-microbial agents to prevent entry and multiplication of microbes into the body.

18. What is vaccine? Explain their types.

Ans: Vaccine is a preparation intended to produce immunity to a disease by stimulating the production of antibodies. Vaccines comprise substances such as suspension of killed or attenuated microorganisms, or products or derivatives of microorganisms that can stimulate the immune system.

1. Live virus vaccine:

- i) Live virus vaccines are prepared from attenuated strains that are completely or almost devoid of pathogenicity but are capable of inducing a protective response.
- ii) Since a related virus from different host cannot cause disease in the new host, it can also be used in live virus vaccines. Use of cowpox virus in the preparation of smallpox disease is one of the best examples for this.
- iii) A pathogen can multiply in unnatural host (human) without any pathogenesis, but provide continuous antigenic stimulation over a period of time.

2. Killed or inactivated whole virus vaccine

- i) These vaccines are prepared by simply inactivating the pathogens. Preparation of killed vaccines may take the route of heat or chemicals.
- ii) The chemicals used include formaldehyde or beta-propiolactone. The traditional agent for inactivation of the virus is formalin.
- iii) Excessive treatment can destroy immunogenicity, whereas insufficient treatment can leave infectious virus capable of causing disease.

3. Recombinant viral vaccines:

- i) Virus proteins have been expressed in bacteria, yeast, mammalian cells and viruses.
- ii) A recombinant virus vaccine is a type of vaccine that is developed by using genetic engineering techniques to create a hybrid virus that combines elements of different viruses. This approach involves taking genetic material (DNA or RNA) from one virus and inserting it into the genetic material of another virus. The resulting recombinant virus is then used as the basis for a vaccine.

4. Live genetically engineered vaccines:

- i) Using molecular approaches (rDNA technology), it is possible to identify specific virulent genes of different pathogens.
- ii) The virulent gene can be deleted or modified by inducing multiple mutations through molecular technology.
- iii) Using the pathogens with modified genes, it is possible to develop a safer vaccine than using conventional attenuation technologies.

5. Synthetic peptides:

- i) The synthetic peptide approach to vaccine development arose in response to rapid DNA cloning and sequence technology. This made it possible to quickly obtain primary sequences and construct various peptides.
- ii) It is generally assumed that, "synthetic peptides do not readily stimulate T cells because of their small size.

6. Anti-idiotype antibodies:

- i) The ability of anti-idiotypic antibodies to mimic foreign antigens has led to their development as vaccines to induce immunity against viruses, bacteria and protozoa in experimental animals.
- ii) Anti-idiotypes have many potential uses as viral vaccines, particularly when the antigen is difficult to grow or hazardous.

19. What is database? Explain structural database

Ans: Database: It is a computerized archive used to store and organize data in such a way that, information can be retrieved easily through a variety of search criteria. Databases are composed of computer hardware and software for data management.

- A structural database is a collection of three-dimensional structural information about biological molecules, particularly proteins and nucleic acids.
- These databases store information about the spatial arrangement of atoms in these molecules, providing valuable insights into their function and interactions.
- Structural databases primarily focus on protein structures. Proteins play a crucial role in various biological processes, and their three-dimensional structures are vital for understanding their functions, interactions, and mechanisms.
- Structural databases are accessible to researchers and scientists worldwide. They can download and analyse structural data for their research, helping them in fields like structural biology, drug discovery, and molecular modelling.

20. Write a note on Multiple Sequence Alignment.

Ans: Multiple Sequence Alignment is a fundamental bioinformatics technique used to compare and align multiple sequences of biological molecules, most commonly DNA, RNA, or protein sequences.

- It is one of the important first steps in structural and functional analysis of newly determined sequence.
- Pairwise alignment is the process of aligning two sequences and is the basis of database similarity searching and multiple sequence alignment.
- Multiple Sequence Alignment is a powerful tool in bioinformatics and is instrumental in understanding the relationships between biological sequences.
- A main application of pairwise alignment is retrieving biological sequences in databases based on similarity. This process involves submission of a query sequence with all individual sequences in a database.
- There are different algorithms that have been developed for increased speed of searching a database and for an efficient searching.
- In order to speed up the comparison between the query sequencing with already available database, certain scientific and research methods have to be used. There are two algorithms or methods for performing database searching, they are; BLAST and FASTA.

V. Answer any Three of the following:

(3X4=12)

21. Find the median for given data

C-I	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
f	3	15	2	8	11	4	1	6

Ans:

Class interval	frequency	C.F.
1-10	3	3
11-20	15	18
21-30	2	20
31-40	8	28
41-50	11	39
51-60	4	43
61-70	1	44
71-80	6	50

Median=

$$\begin{aligned} &= L + \left[\frac{N/2 - CF}{F} \right] \times C \\ &= 31 + \left[\frac{50/2 - 20}{8} \right] \times 10 \\ &= 31 + \left[\frac{25 - 20}{8} \right] \times 10 \end{aligned}$$

$$\begin{aligned} &= 31 + [0.625] \times 10 \\ &= 31 + 6.25 \end{aligned}$$

$$\text{Median} = 37.25$$

22. Write a note on graphical presentation of data.

Ans: Presenting data in the form of graphs is called as graphic presentation of data.

Graph: A graph is the geometrical image of data.

- A graph is a diagram consisting of lines of statistical data.
- The graph is drawn on a graph paper.
- The graph has two intersecting lines called as axes.
- The horizontal line is called as X axis. The vertical line is called as Y-axis.
- The point of intersection is called as "O"
- The "O" point is common to both X and Y axis. Hence the X axis is also called as OX line and Y axis is also called as OY line.
- A suitable scale is given for each axis.

- Usually independent variable is marked on the X-axis and dependent variable are marked on Y-axis.
- A title is given to a graph.
- The values corresponding to X and Y axis are plotted on the paper.
- The points are joined with straight or curved lines.

23. Find the standard deviation of given data.

X	34	36	37	39	41	43
f	1	2	2	2	2	1

Ans:

x	f	FX	$X-\bar{X}$	$(X-\bar{X})^2$	$f(X-\bar{X})^2$
34	1	34	34-63=-29	841	841
36	2	72	72-63=9	81	162
37	2	74	74-63=11	121	242
39	2	78	78-63=15	225	450
41	2	82	82-63=19	361	722
43	1	43	43-63=-20	400	400
		$\sum fx=383$			$\sum f(X-\bar{X})^2=$ 2817

$$\bar{X} = \frac{\sum fx}{N}$$

$$= \frac{383}{6}$$

$$\bar{X} = 63.83$$

$$\text{Standard deviation} = \sqrt{\frac{\sum f(X-\bar{X})^2}{\sum F}}$$

$$= \sqrt{\frac{2817}{10}}$$

$$= \sqrt{2817}$$

$$\text{SD} = 16.78$$

24. Write a note on Correlation.

Ans: It is defined as relationship between two or more variable. It is the co-variation of two variables.

Example: the weight of man depends on height. When height increases, weight also increases. This is the correlation between height and weight.

Significance of correlation analysis.

1. It is very useful to study the relationship between variables.
2. Some variables show some kind of relationship, correlation analysis helps in measuring the degree of relationship between the variables.
3. The relationship between variables can be verified and tested for significance with the help of correlation analysis.
4. Simple error can also be calculated.

B.Sc VI Semester Physics 6.1 Key Answers

Part-I

1. a. What is meant by unit cell?

The smallest building block of a crystal, consisting of atoms, ions, or molecules, whose geometric arrangement defines a crystal's characteristic symmetry and whose repetition in space produces a crystal lattice.

b) Write any two properties of free electrons in metal.

1. Metals have high electric conductors and thermal conductivity
2. Metallic conductors obey Ohm's law
3. At absolute zero temperature, the resistivity tends to zero and the material becomes a superconductor.

c) Distinguish between Intrinsic and extrinsic semiconductor.

Intrinsic	Extrinsic
1. Pure	1. Impure
2. No of electrons = No of Holes	2. No of electrons \neq No of Holes

d) Mention any two uses of Superconductivity

1. Superconducting materials are used in MRI
2. Superconductors are used in levitating trains
3. Superconductors are used in generators and transformers

e) Write any two properties of γ -ray

1. Gamma, γ -rays travel with the speed of light.
2. Gamma, γ -rays can produce fluorescence in a substance like williumite.
3. Gamma, γ -rays can produce nuclear reactions.

f) Mention semi-empirical mass formula.

$$E_b(\text{MeV}) = a_V A - a_S A^{\frac{2}{3}} - a_C \frac{Z^2}{A^{\frac{1}{3}}} - a_A \frac{(A - 2Z)^2}{A} \pm \delta(A, Z)$$
$$\delta(A, Z) = \begin{cases} +\delta_0 & \text{for } Z, N \text{ even} \\ 0 & \\ -\delta_0 & \text{for } Z, N \text{ odd} \end{cases}$$

g) What is meant by secondary energy sources?

Ans: The energy sources that are produced using primary resources are called secondary energy sources.

Example: Electricity, solar energy, wind energy, solar cells, solar heaters etc.

h) What is declination?

1: The angle between the direction of sun rays and the equator of the earth.

i) Write the truth table of NAND gate

A	B	Y=AB
0	0	1
0	1	1
1	0	1
1	1	0

j) Convert $(1010)_2$ binary to decimal number.

$$\text{Ans: } 1010 = 1 \times 2^3 + 0 \times 2^2 + 1 \times 2^1 + 0 \times 2^0 \\ = 8 + 0 + 2 + 0 = 10$$

$$(1010)_2 = (10)_{10}.$$

k) Calculate the interplanar spacing for $(3,2,2)$ plane in a simple cubic lattice where the lattice constant is 4×10^{-10} m

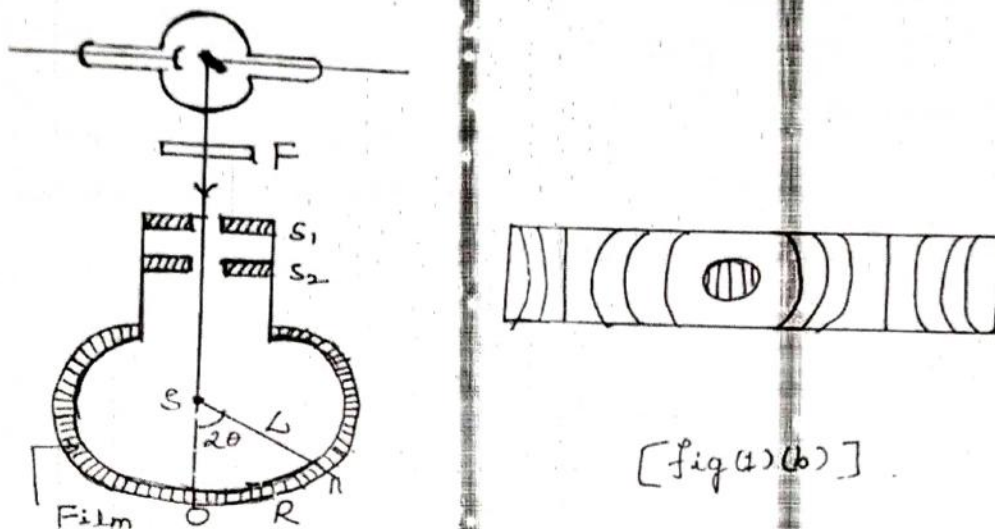
$$d_{hkl} = \frac{a}{\sqrt{h^2 + k^2 + l^2}} = \frac{4 \times 10^{-10}}{\sqrt{9 + 4 + 4}} = \frac{4 \times 10^{-10}}{\sqrt{17}} = 0.975 \times 10^{-10} \text{ m}$$

l) If the solar altitude angle at a place is $45^\circ 20'$ Calculate the value of the zenith angle.

$$\theta_z = \frac{\pi}{2} - \alpha = \frac{180}{2} - 45^\circ 20' = 90^\circ - 45^\circ 20' = 44^\circ 40'$$

Part-II

2. Explain X-ray diffraction by powder crystal method.



The experimental arrangement is as shown in [fig 1.a]. The x-rays from the source are made approximately monochromatic by filter F. A narrow beam of these monochromatic x-rays collimated by two lead slits S₁ & S₂ falls on the powdered specimen S. The specimen is suspended vertically on the axis of cylindrical camera, which covers the whole circumference in order to receive the beams diffracted up to 180°.

The powder specimen of the crystal can be imagined to be a collection of random oriented tiny crystals, presenting all values of glancing angles to the incident beam. For a given wavelength and given value of d, there can be only one value of θ (glancing angle) which satisfies the equation $2d\sin\theta = n\lambda$, where $n=1$.

Such reflected beams emerge out from the specimen in all directions inclined at an angle 2θ with the direction of the inclined beam, because millions of tiny crystals in the specimen are randomly oriented.

The reflected rays will be on the surface of the cone, vertex at the specimen, base on the photographic film and having a semi vertical angle 2θ . The traces obtained on the photographic film will be as in [fig 1.b].

Let 'L' be the radius of the cylindrical camera. The direct beam strikes the film at O. Suppose a spectrum with glancing angle θ is found at 'A' which is at a distance R from O. Then $\theta = R/2L$. Using this value of θ in Bragg's equation and knowing the value of λ , d can be calculated.

The powder crystal method has been employed in the study of microcrystalline substances like metals, alloys and other forms where single crystals are not available.

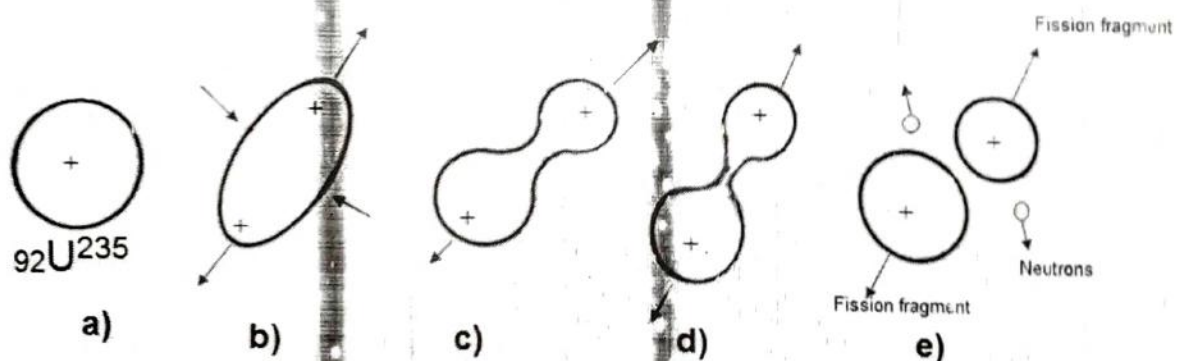
3. What is the transition temperature? Applications of Superconductivity

Ans: It is the temperature at which or below which, substance/materials loses its electrical resistance and behaves as superconductors. The vast majority of the known superconductors have transition temperatures that lie between 1 K and 10 K. Of the chemical elements, tungsten has the lowest transition temperature, 0.015 K, and niobium the highest, 9.2 K. ... is referred to as the transition temperature, or critical temperature (T_c).

Applications of Superconductivity:

- Can carry large quantities of energy without heat loss.
- Able to generate strong magnetic fields.
- Superconductors beneficial applications in medical imaging techniques.
- New superconductive films may result in miniaturization .
- Superconductors increased speed in computer chips.

4. Explain nuclear fission on the basis of liquid drop model.

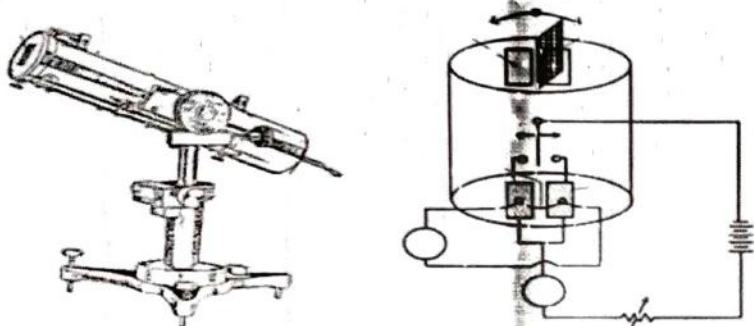


Bhor and Wheeler's successfully explained the phenomenon of nuclear fission on liquid drop model. A liquid drop has a spherical form due to internal molecular forces responsible for surface tension. According to theory, an excited liquid drop may oscillate in a number of ways. On applying a large external force, the sphere may change into an ellipsoid. If the external force is sufficiently large, the ellipsoid may change into a dumb-bell and may even break at the narrow end into two portions.

The analogy may be extended to a nucleus which behaves like a liquid drop. When a nucleus absorbs a neutron, it forms a compound nucleus which is highly energetic as shown in above figure. The extra energy possessed by it comes mostly from binding energy of the neutron absorbed by it. The extra energy may set up a series of rapid oscillations in the spherical

compound nucleus as shown in **a**) figure above. As a result of these oscillations, the shape of the nucleus may change at times from spherical to ellipsoidal shown as **b**). If the extra energy is large, oscillations may be so violent that stage **c**) and ultimately stage **d**) may be approached. The Nucleus is now dumb-bell shaped (stage d). Each bell of the dumb-bell has now a positive charge and one repels the other. This results in fission (stage e). The nuclei that result from fission are called *fission fragments*. Usually fission fragments are of unequal size. A heavy nucleus undergoes fission when it acquires enough excitation energy to oscillate violently.

5. Describe Angstrom pyrheliometer.



Pyrheliometer is an instrument used to measure the quantity of heat radiation and solar constant. It is a type of actinometer that can measure solar irradiance in the desired location and solar radiation flux density.

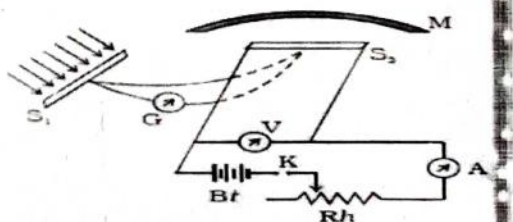
Construction: Pyrheliometer designed by Angstrom is the simplest and most accurate. This is a dependable instrument used to monitor direct solar radiation and has long been accepted as a working standard. The solar radiation spectrum extends approximately between 300 and 2800 nm.

Working principle:

A pyranometer is operated based on the measurement of the temperature difference between a clear surface and a dark surface. The black coating on the thermopile sensor absorbs the solar radiation, while the clear surface reflects it, and hence less heat is absorbed. A pyrheliometer is used to measure direct solar radiation from the sun and its marginal periphery.

Angstrom's pyrheliometer consists of two identical strips S1 and S2 of area A. One junction of a thermocouple is connected to S1 and the other junction is connected to S2. A sensitive galvanometer is connected to the thermocouple.

Strip S2 is connected to an external electrical circuit as shown in Figure.



When both the strips S1 and S2 are shielded from the solar radiation, the galvanometer shows no deflection as both the junctions are at the same temperature. Now strip S1 is exposed to the solar radiation and S2 is shielded with a cover M. As strip S1 receives heat radiations from the sun, its temperature rises and hence the galvanometer shows deflection. Now current is allowed to pass through the strip S2 and it is adjusted so that the galvanometer shows no deflection. Now, the strips S1 and S2 are again at the same temperature.

If the quantity of heat radiation that is incident on the unit area in unit time on strip S1 is Q and its absorption coefficient, then the amount of heat radiations absorbed by the strip S1 in unit time is QAa .

Also, the heat produced in unit time in the strip; is given by VI , where V is the potential difference and I is the current flowing through it.

As heat absorbed = heat produced

$$QAa = VI \text{ or } Q = VI/Aa$$

Knowing the value of V, I, A and a, Q can be calculated.

6. Prove the Boolean expression. $(A+B+C).(A+B) = A + B$.

$$Y = (A+B+C).(A+B) = A + B.$$

$$Y = A.A + A.B + B.A + B.B + C.A + C.B$$

Using $A.A = A$, we get

$$Y = A + AB + AB + B + AC + BC$$

$$Y = A + AB + B + AC + BC$$

$$(\because AB + AB = AB)$$

$$Y = A + B + AC + BC$$

$$(\because A + AB = A)$$

$$Y = A(1+C) + B(1+C)$$

$$Y = A.1 + B.1$$

$$(\because 1+C=1)$$

$$Y = A + B$$

7. Protons are accelerated in cyclotron with dees of radius 0.4 m and frequency of the alternating potential is 10 Mega cycle per second at 10,000 volts. Calculate the

a) Speed of proton and

b) Kinetic energy of proton (Given- applied field $B = 0.66$ weber/metre²)

$$r = 0.4 \text{ m } f = 10 \times 10^6$$

$$2\pi f = \frac{Be}{m}$$

$$m = 0.1680 \times 10^{-26} \text{ kg}$$

$$\text{a) Speed } (v) = \frac{qBr}{m} = 2.514 \times 10^7 \text{ m/s}$$

$$\text{b) K. E} = \frac{q^2 B^2 r^2}{2m} = 0.5310 \times 10^{-12} \text{ J}$$

8. Give the Debye's theory of specific heat capacity of a solid

The main difference between Debye's model and Einstein's model is that Debye considered the vibration modes of crystal as a whole; whereas Einstein's starting point was to consider the vibrations of a single atom, assuming the atomic vibrations to be independent of each other.

According to Debye any solid is capable of vibrating elastically in many different modes, the frequency varying from one mode to another and the number of the modes of vibrations of solid are limited in number.

When a continuous solid is subjected to elastic vibration, two kinds of vibrations are produced: i) transverse and ii) longitudinal vibrations.

The number of normal modes of vibration in a volume V is the frequency range ν and $\nu + d\nu$ is given by

$$n(\nu) d\nu = V \frac{4\pi\nu^2}{C^3} d\nu \quad \dots (1)$$

where C is the velocity of the elastic waves. In a solid, both transverse and longitudinal waves can exist together and the transverse waves have two states of polarisation. Therefore the equation. (1) can be written as

$$n(\nu) d\nu = V4\pi \left[\frac{1}{C_1^3} + \frac{1}{C_2^3} \right] \nu^2 d\nu \quad \dots (2)$$

where C_1 = velocity of the longitudinal wave

C_2 = velocity of the transverse wave

Each atom has 3 degrees of freedom and hence the total number of vibrations will be equal to $3N$

$$\therefore \int_0^{\nu_m} V4\pi \left(\frac{1}{C_1^3} + \frac{1}{C_2^3} \right) \nu^2 d\nu = 3N \quad \dots (3)$$

where ν_m is the maximum frequency in the range of 0 to a definite upper limit ν_m

$$\text{or } 4\pi V \left(\frac{1}{C_1^3} + \frac{1}{C_2^3} \right) = \frac{9N}{\nu_m^3}$$

$$\text{or } \left(\frac{1}{C_1^3} + \frac{1}{C_2^3} \right) = \frac{9N}{4\pi V v_m^3} \quad \dots (4)$$

Substituting this value in the eqn. (2) we get

$$n(v) dv = 9N \frac{v^2}{v_m^3} dv \quad \dots (5)$$

According to the quantum theory, the energy associated with each degree of freedom is $\frac{hv}{e^{hv/kT} - 1}$

\therefore the total energy in the solid for frequencies between v and $v + dv$ is given by

$$= \frac{9N}{v_m^3} \frac{hv^3 dv}{e^{hv/kT} - 1}$$

\therefore Total thermal energy associated with the solid

$$U = \frac{9N}{v_m^3} \int \frac{hv^3 dv}{e^{hv/kT} - 1} \quad \dots (6)$$

$$\text{put } x = \frac{hv}{kT} \quad \text{i.e. } v = \frac{kT}{h} x \quad \therefore dv = \frac{kT}{h} dx$$

Also write Debye characteristic temperature θ as

$$\frac{\theta}{T} = \frac{hv_m}{kT} \quad v_m = \frac{\theta kT}{h}$$

Substituting the values of x and θ in the eqn. (6) we get.

$$U = 9Nk \frac{T^4}{\theta^3} \int_0^{\theta/T} \frac{x^3 dx}{e^x - 1}$$

$$= 9R \frac{T^4}{\theta^3} \int_0^{\theta/T} \frac{x^3 dx}{e^x - 1} \quad \text{where } R = Nk$$

Therefore atomic heat capacity for solid at constant volume is given by

$$C_v = \left(\frac{dU}{dT} \right)_v = 9R \left[4 \left(\frac{T}{\theta} \right)^3 \int_0^{\theta/T} \frac{x^3 dx}{e^x - 1} - \frac{\theta}{T} \frac{1}{e^{\theta/T} - 1} \right] \dots (7)$$

It gives Debye's formula for the atomic heat capacity

Conclusions :

i) At high temperature

$x = hv/kT$ is small and also θ_D/T is small

$$\therefore e^{\theta/T} = 1 + \frac{\theta}{T} \text{ i.e. } \frac{T}{\theta} = \frac{1}{e^{\theta/T} - 1} = 1$$

and $e^x - 1 = 1 + x - 1 = x$ neglecting higher powers of x

$$\therefore 4 \left(\frac{T}{\theta} \right)^3 \int_0^{\theta/T} \frac{x^3 dx}{e^x - 1} = 4 \left(\frac{T}{\theta} \right)^3 \int_0^{\theta/T} x^2 dx = \frac{4}{3}$$

$$\therefore C_v = 9R \left(\frac{4}{3} - 1 \right) = 3R$$

It agrees with Dulong and Petit law and experimental value.

ii) At low temperature, x and θ/T are large and $e^{\theta/T}$ also becomes large so that the last term of the eqn.(7) becomes zero. The upper limit for integration can be taken as ∞ instead of θ/T . The value of definite integration is $\pi^4/15$. Therefore at low temperature.

$$C_v = 9R \times 4 \left(\frac{T}{\theta} \right)^4 \times \frac{\pi^4}{15} = \frac{12\pi^4}{5} R \left(\frac{T}{\theta} \right)^3$$

It is known as Debye's T^3 law.

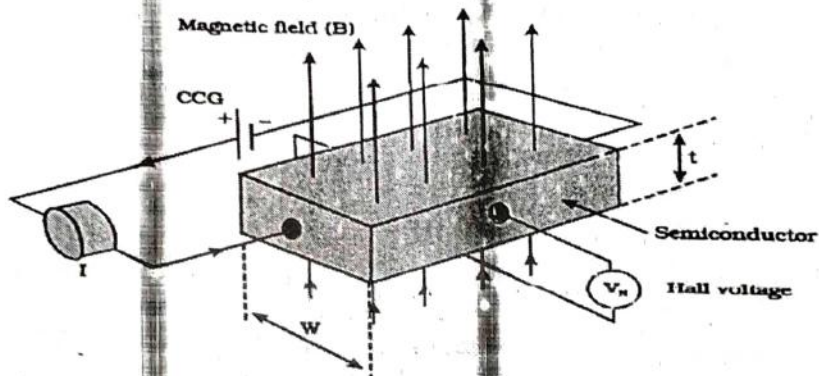
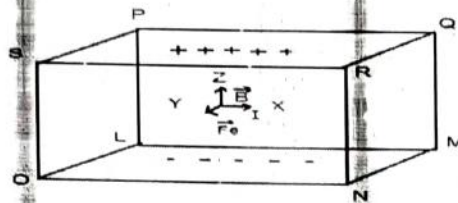
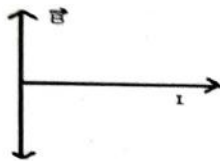
$$C_v \propto T^3$$

Thus at low temperature, the atomic heat is directly proportional to the cube of the absolute temperature which is verified by the experiment.

9. What is Hall Effect? Derive an expression for hall coefficient. Mention any two applications of Hall effect.

Ans: The production of a potential difference across an electrical conductor when a magnetic field is applied in a direction perpendicular to that of the flow of current. The **Hall effect** is the production of a voltage difference (the **Hall voltage**) across an electrical conductor, transverse to an electric current in the conductor and to an applied magnetic field perpendicular to the current. It was discovered by Edwin Hall in 1879.

Derive an expression for hall coefficient



Consider a rod shaped electrical conductor of rectangular cross section kept in magnetic field acting along Z-axis and current flowing along X-axis.

If the current conventionally flows along the positive direction of X-axis, the electrons flow in the opposite directions with drift velocity V_x . Under the influence of the magnetic field, each electron experiences force F^r in the direction along Y-axis which is perpendicular to both E and B. As a result of this, electrons are accumulated on the side SRNO which becomes negative, whereas side PQML becomes positive. Thus a voltage is developed across these two sides known as Hall Voltage.

The accumulation of the charges on the side SRNO continues as long as force on electrons due to electric field is sufficient to cancel the force due to magnetic field. When the net force on the electrons is zero, a stationary state is reached. At this state, value of E is denoted by E_H i.e. Hall Electric Field. After some time, again electrons will move towards SRNO.

Hall Voltage and Hall Coefficient:

Electric force acting on electrons is

$$F_e = -eE^r \text{----- (1)}$$

Magnetic force acting on electrons is

$$FB = eVdB \text{----- (2)}$$

In the steady state, net force is zero

$$\text{i.e. } F = F_e + FB = 0$$

$$\Rightarrow -eE + eVdB = 0$$

$$\Rightarrow eVdB = eE$$

$$\Rightarrow E = eVdB/e$$

$$\Rightarrow E = VdB \text{----- (3)}$$

Where, E = Hall Field and Vd = Drift Velocity

Let n be the free electron density

J be the current density and is given by,

$$J = -neVd$$

$$\therefore Vd = -J/ne \text{----- (4)}$$

Putting equation (4) value in equation (3), we get

$$E = -J/ne B$$

$$E = RHJ B \text{----- (5)}$$

$\therefore RH = -J/ne$, which is Hall Coefficient

RH is -ve for electrons

RH is +ve for holes and

RH is constant for a given material

We know that, $E = V_H d \Rightarrow V_H = Ed$

$$\therefore V_H = -JneBd \text{----- (6)}$$

V_H is Hall Voltage.

Following are the applications of Hall Effect:

- Using magnetic flux leakage – In order to properly inspect items such as pipes or tubes, Hall Effect probes work with something called magnetic flux leakage. This is a way of testing such items, and being able to spot potential corrosion, erosion, or pitting. This is specifically used in steel items, and can give important information about lifespan or safety.
- Sensors to detect rotation speed – A Hall Effect probe can be used to in bicycle wheels, speedometers in the automotive world, electronic types of ignition systems, and gear teeth.
- Used to detect movement – You will often find a Hall Effect probe used in such items as Go-Kart controls, smart phones, paintball guns, or air soft guns, as well as some GPS systems.
- Ferrite Toroid Hall Effect current transducers – This is mainly used in electronic compasses, making use of the magnetic field to show direction.

10. Describe the construction and working of a linear accelerator. Derive the expression for the length of n^{th} tube.

10.4. The Linear Accelerator

Direct acceleration of particles by potentials above 10 million volts is a difficult problem due to insulation difficulties. For such high energies, acceleration of the particles is achieved in small successive steps. In such machines, the P.D. between different parts of the machine and between the machine and earth, is maintained low, compared with the P.D. corresponding to the ultimate energy acquired by the particles. One machine employing this method is the linear accelerator. In this machine, high energy particles are produced without employing high P.D.'s, by using the principle of *synchronous acceleration*.

Fig. 10.4 shows the schematic diagram of a linear accelerator. It consists of a series of coaxial hollow metal cylinders or drift tubes 1, 2, 3, 4, etc. They are arranged linearly in a glass vacuum chamber.

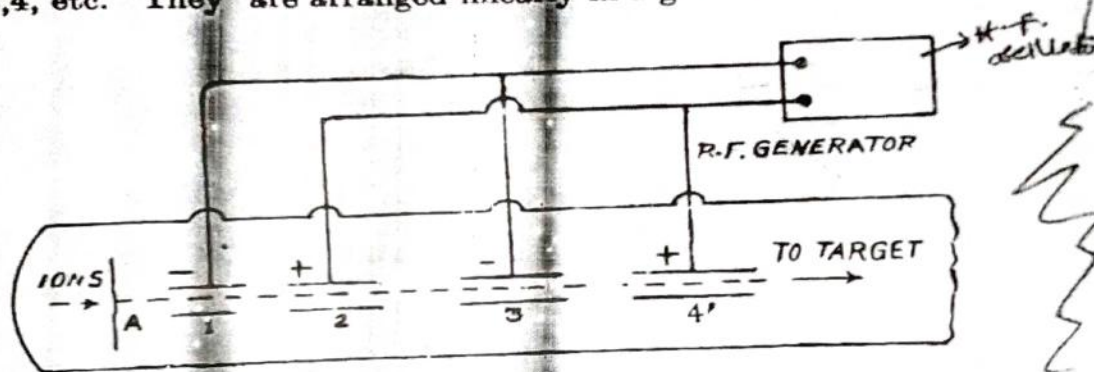


Fig. 10.4.

The alternate cylinders are connected together, the odd numbered cylinders being joined to one terminal and the even numbered ones to the second terminal of a H.F. oscillator. Thus in one half cycle, if tubes 1 and 3 are positive, 2 and 4 will be negative. After half a cycle the polarities are reversed i.e., 1 and 3 will be negative and 2 and 4 positive. The ions are accelerated only in the gap between the tubes where they are acted upon by the electric field present in the gaps. The ions travel with constant velocity in the *field-free space* inside the drift tubes.

Positive ions enter along the axis of the accelerator from an ion source through an aperture A. Suppose a positive ion leaves A and is accelerated during the half cycle, when the drift tube 1 is

negative with respect to A . Let e be the charge and m the mass of the ion and V potential of drift tube 1 with respect to A . Then velocity v_1 of the ion on reaching the drift tube is given by

$$\frac{1}{2} m v_1^2 = Ve \text{ or } v_1 = \sqrt{\frac{2Ve}{m}}$$

The length of the tube 1 is so adjusted that as the positive ions come out of it, the tube has a positive potential and the next tube (tube No. 2) has a negative potential, i.e., the potentials change sign. The positive ion is again accelerated in the space between the tubes 1 and 2. On reaching the tube 2, the velocity v_2 of the positive ion is given by

$$\frac{1}{2} m v_2^2 = 2Ve \text{ or } v_2 = \sqrt{2} \sqrt{\frac{2Ve}{m}} = \sqrt{2} v_1$$

This shows that v_2 is $\sqrt{2}$ times v_1 . In order that this ion, on coming out of tube 2, may find tube 3 just negative and the tube 2 positive, it must take the same time to travel through the tube 2. Since $v_2 = \sqrt{2} v_1$, the length of tube 2 must be $\sqrt{2}$ times the length of tube 1. For successive accelerations in successive gaps the tubes 1, 2, 3 etc., must have lengths proportional to 1, $\sqrt{2}$, $\sqrt{3}$ etc. i.e., $l_1 : l_2 : l_3 : \text{etc.} = 1 : \sqrt{2} : \sqrt{3} : \text{etc.}$

Energy of the ion : If n = the number of gaps that the ion travels in the accelerator and v_n = the final velocity acquired by the ion, then

$$\left. \begin{array}{l} \text{Velocity of the ion, as it} \\ \text{emerges out of the } n^{\text{th}} \text{ tube} \end{array} \right\} = \sqrt{n} \sqrt{\frac{2Ve}{m}}$$

$$\therefore \text{K. E. acquired by the ion} = \frac{1}{2} m v_n^2 = nVe.$$

Thus the final energy of the ions depends upon (i) the total number of gaps and (ii) the energy gained in each gap.

The limitations of this accelerator are : (i) The length of the accelerator becomes inconveniently large and it is difficult to maintain vacuum in a large chamber. (ii) The ion current available is in the form of short interval impulses because the ions are injected at an appropriate moment.

12. Construct the basic gates using NAND gate and write the truth tables.

NAND gate $Y = \overline{A \cdot B}$

Symbol



Ckt



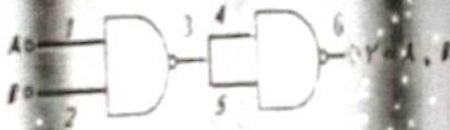
A	B	$Y = \overline{A \cdot B}$
0	0	1
0	1	1
1	0	1
1	1	0

1) AND gate $Y = A \cdot B$

Symbol



Ckt



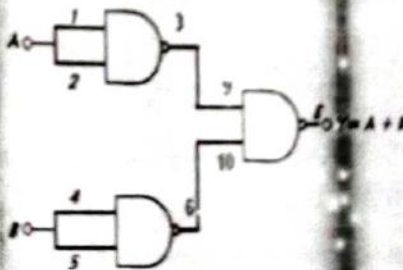
A	B	$Y = A \cdot B$
0	0	0
0	1	0
1	0	0
1	1	1

2) OR gate $Y = A + B$

Symbol



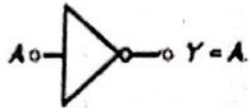
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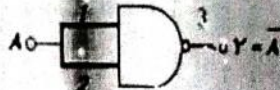
A	B	$Y = A + B$
0	0	0
0	1	1
1	0	1
1	1	1

3) NOT gate $Y = \bar{A}$

Symbol



Ckt



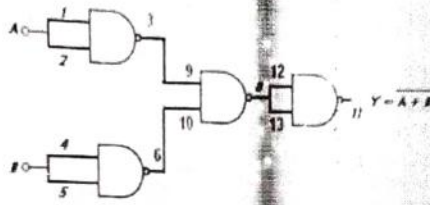
A	$Y = \bar{A}$
0	1
1	0

4) NOR gate $Y = \overline{A+B}$

Symbol



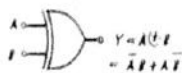
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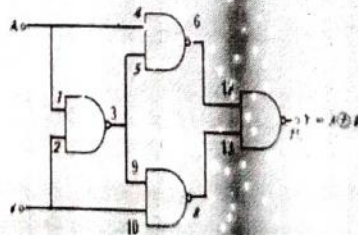
A	B	$Y = \overline{A+B}$
0	0	1
0	1	0
1	0	0
1	1	0

5) EX-OR gate $Y = A \oplus B = \bar{A}B + A\bar{B}$

Symbol



Ckt



EX-OR (X-OR) Gate Truth Table

Inputs		Output $X = A \oplus B$
A	B	
0	0	0
0	1	1
1	0	1
1	1	0

III semester B.Sc (NEP) Degree Examination April -2023
Zoology (Optional)
Molecular Biology, Bioinstrumentation and Techniques in Biology

Key Answers

Dr.G.M.Sajjanar

I. 2 marks any 6

1. TATA Box (Goldberg-Hogness box)

- TATA box in molecular biology are DNA sequences seen in the core promoter areas of the genes in the eukaryotes and archaea.
- Pribnow box is the bacterial homolog of the TATA box that has a shorter consensus sequence.
- It is deemed to be a non-coding sequence of DNA.
- It was called so as it contains a consensus sequence distinguished by recurring T and A base pairs.
- The TATA-binding proteins function as a part of the TFIID, the huge transcription factor which initiates the transcription process.
- Once it associates with the promoter, it assigns the extra transcription factors and a string of them to associate. This leads to the construction of a huge protein complex, which determines whether to start the transcription or not.

2. Most amino acids show multiple coding. This degeneracy of genetic code provides a protection to organisms against harmful mutations, stabilizes the phenotype and decreases chances in base pairing errors.

3. GTP is used in protein synthesis. During initiation of translation, the GTP is associated with an initiation factor 2 (IF2) and is hydrolyzed upon the assembly of the initiation ribosomal complex. During elongation, GTP facilitates the binding of a new aminoacyl tRNA to the A site of a ribosome.

4. one that induces *specifically* : a substance that is capable of activating the transcription of a gene by combining with and inactivating a genetic repressor.

5. Methylation refers to the addition of a methyl group (CH₃ group) to a compound or the substitution of one of its functional groups with a methyl group. It can be considered as a specific type of alkylation in which only a CH₃ group is transferred.

6. Fluorescence microscopy is widely used in diagnostic microbiology and microbial ecology (for enumerating bacteria in natural environments). Some organisms, such as *Pseudomonas*, fluoresce naturally when irradiated with ultraviolet light. Other organisms, such as *Mycobacterium tuberculosis* and *Treponema pallidum*, are treated with fluorochrome.

1. Acid-fast bacilli (AFB) in sputum or CSF are detected when stained with auramine fluorescent dye.
2. Detection of *Trichomonas vaginalis*, intracellular gonococci, and other parasites when stained by acridine orange.
3. In immunodiagnosis of infectious diseases, using both direct and indirect antibody techniques. Immunofluorescence is especially useful in diagnosing syphilis and rabies.

7. **pH meter**, electric device used to measure hydrogen-ion activity (acidity or alkalinity) in solution. Fundamentally, a pH meter consists of a voltmeter attached to a pH-responsive electrode and a reference (unvarying) electrode. The pH-responsive electrode is usually glass, and the reference is usually a silver-silver chloride electrode, although a mercury-mercurous chloride (calomel) electrode is sometimes used. When the two electrodes are immersed in a solution, they act as a battery. The glass

electrode develops an electric potential (charge) that is directly related to the hydrogen-ion activity in the solution (59.2 millivolts per pH unit at 25 °C [77 °F]), and the voltmeter measures the potential difference between the glass and reference electrodes.

8. Centrifugation is a process which separates or concentrates materials suspended in a liquid medium. The theoretical basis of this technique is the effect of gravity on particles in suspension. 2 particles of different masses will settle in a tube at different rates in response to gravity. The ω is proportional to the rotation rate of the rotor. The centrifuge consists of a rotor and closed in a refrigerated chamber by an electric motor.

II. 04 marks any .

9. Key points:

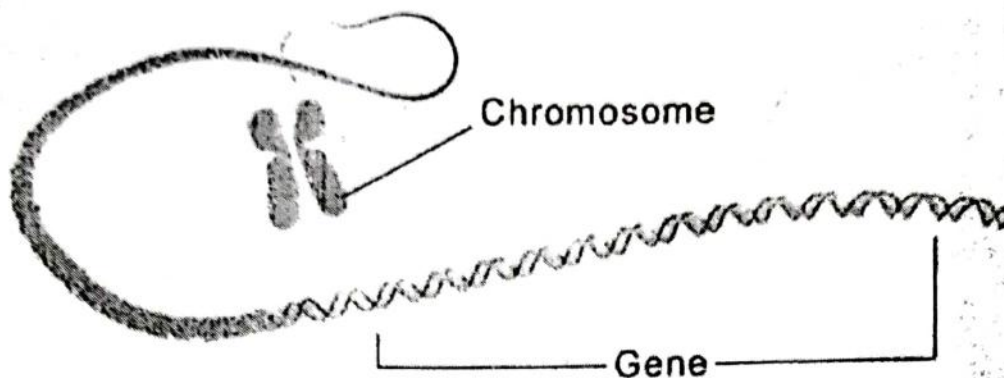
- Transcription is the process in which a gene's DNA sequence is copied (transcribed) to make an RNA molecule.
- RNA polymerase is the main transcription enzyme.
- Transcription begins when RNA polymerase binds to a promoter sequence near the beginning of a gene (directly or through helper proteins).
- RNA polymerase uses one of the DNA strands (the template strand) as a template to make a new, complementary RNA molecule.
- Transcription ends in a process called termination. Termination depends on sequences in the RNA, which signal that the transcript is finished.

10. A gene is the basic physical and functional unit of heredity. Genes are made up of DNA. Some genes act as instructions to make molecules called proteins. However, many genes do not code for proteins. In humans, genes vary in size from a few hundred DNA bases to more than 2 million bases. An international research effort called the Human Genome Project, which worked to determine the sequence of the human genome and identify the genes that it contains, estimated that humans have between 20,000 and 25,000 genes.

Every person has two copies of each gene, one inherited from each parent. Most genes are the same in all people, but a small number of genes (less than 1 percent of the total) are slightly different between people. Alleles are forms of the same gene with small differences in their sequence of DNA bases. These small differences contribute to each person's unique physical features.

Scientists keep track of genes by giving them unique names. Because gene names can be long, genes are also assigned symbols, which are short combinations of letters (and sometimes numbers) that represent an abbreviated version of the gene name. For example, a gene on chromosome 7 that has been associated with cystic fibrosis is called the cystic fibrosis transmembrane conductance regulator; its symbol is *CFTR*.

Genes are made up of DNA. Each chromosome contains many genes



U.S. National Library of Medicine

Fine Structure of Gene:

Benzer, in 1955, divided the gene into recon, muton and cistron which are the units of recombination, mutation and function within a gene. Several units of this type exist in a gene. In other words, each gene consists of several units of function, mutation and recombination. The fine structure of gene deals with mapping of individual gene locus. This is parallel to the mapping of chromosomes. In chromosome mapping, various genes are assigned on a chromosome, whereas in case of a gene several alleles are assigned to the same locus. The individual gene maps are prepared with the help of intragenic recombination. Since the frequency of intragenic recombination is extremely low, very large population has to be grown to obtain such rare combination. Prokaryotes are suitable material for growing large population. In *Drosophila*, 14 alleles of lozenge gene map at four mutational sites which belong to the same locus (Green, 1961). Similarly, for rosy eye in *Drosophila*, different alleles map at 10 mutational sites of the same locus.

a. Recon:

Recons are the regions (units) within a gene between which recombination's can occur, but the recombination cannot occur within a recon. There is a minimum recombination distance within a gene which separates recons. The map of a gene is completely linear sequence of recons.

b. Muton:

It is the smallest element within a gene, which can give rise to a mutant phenotype or mutation. This indicates that part of a gene can mutate or change. This disproved the bead theory according to which the entire gene was to mutate or change.

c. Cistron:

It is the largest element within a gene which is the unit of function. This also knocked down the bead theory according to which entire gene was the unit of function. The name cistron has been derived from the test which is performed to know whether two mutants are within the same cistron or in different cistrons. It is called cis-trans test which is described below.

d. Cis-Trans Test:

When two mutations in trans position produce mutant phenotype, they are in the same cistron. Complementation in trans position (appearance of wild type) indicates that the mutant sites are in different cistrons. There is no complementation between mutations within a cistron. It is now known that some genes consist of only one cistron; some consist of two or even more. For example, the mutant miniature (*m*) and dusky (*dy*) both decrease wing size in *Drosophila* and map in the same part of X chromosome. But when brought together in *dy +/m* heterozygote, the phenotype is normal which indicates that the locus concerned with wing size is composed of at least two cistrons.

11. Mechanism of Translation in Prokaryotes:

Translation process consists of three major phases or stages, viz:

- (1) Initiation,
- (2) Elongation and
- (3) Termination.

1. Initiation:

This is the first phase of translation. Start or initiation codon [AUG] is responsible for initiation of translation process.

Initiation of translation in prokaryotes involves the assembly of the components of the translation system which are: the two ribosomal subunits (small and large), the mRNA to be translated, the first (formyl) aminoacyl tRNA (the tRNA charged with the first amino acid), GTP (as a source of energy), and three initiation factors (IF 1, IF 2 and IF 3) which help the assembly of the initiation complex.

The ribosome consists of three sites, the A site, the P site, and the E site. The A site is the point of entry for the aminoacyl tRNA (except for the first aminoacyl tRNA, fMet-tRNA^{fMet}, which enters at the P site). The P site is where the peptidyl tRNA is formed in the ribosome. And the E site which is the exit site of the now uncharged tRNA after it gives its amino acid to the growing peptide chain.

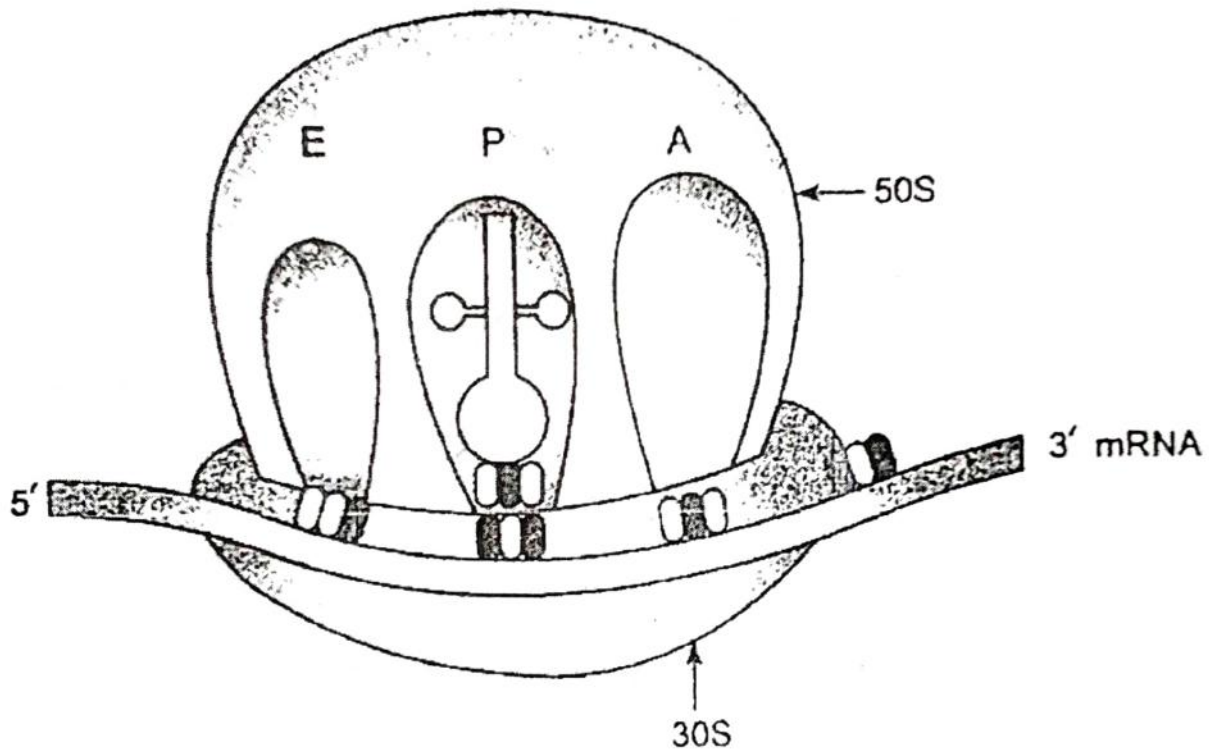


Fig. 23.1. Initiation

Translation begins with the binding of the small ribosomal subunit to a specific sequence on the mRNA chain. Initiation of translation begins with the 50S and 30S ribosomal subunits. IF1 (initiation factor 1) blocks the A site to ensure that the fMet-tRNA can bind only to the P site and that no other aminoacyl-tRNA can bind in the A site during initiation, while IF3 blocks the E site and prevents the two subunits from associating.

IF2 is a small GTPase which binds fMet-tRNA^{fMet} and helps its binding with the small ribosomal subunit. The 3' end of the 16S rRNA of the small 30S ribosomal subunit recognizes the ribosomal binding site on the mRNA (Shine-Dalgarno sequence or SD), through its anti-SD sequence, 5-10 base pairs upstream of the start codon. The Shine-Dalgarno sequence is found only in prokaryotes.

Endocrinology - COEC - Zoology

1) Define Endocrine gland → An organ that makes hormones that are released directly and organs all over the body.

b) Mention any Four endocrine glands

Important endocrine glands include the pituitary, thyroid, parathyroid, thymus, adrenal glands.

c) Name the hormones secreted by Adenohypophysis

M.S.H, otherwise known as the melanocyte-stimulating hormone.

d) What are Trophic hormone.

Trophic hormones are hormones of the anterior lobe of the pituitary.

e) Write Functions of α & β cells. (Homeostasis)

- The alpha cell releases glucagon which elevates blood glucose.

- While the beta cell produces insulin, the blood glucose lowering hormone of the body.

f) Mention the hormones of Adrenal medulla

Epinephrine (Adrenaline) and norepinephrine (Noradrenaline)

g) Name the hormones of Gastrointestinal gland

Gastrin, CCK, secretin, somatostatin, ghrelin, bombesin, and gastrin-releasing peptide (GRP)

h) Define Circadian Rhythm (sir-kay-dee-un-kay-thum)

The natural cycle of physical, mental & behavior changes that the body goes through in a 24-hour cycle.

II a) Write a note on pituitary gland

- Your pituitary gland also known as hypophysis.
- Is a small pea-sized gland located at the base of your brain below your hypothalamus.
- It sits in its own little chamber under your brain known as the sella turcica.
- It's a part of your endocrine system & is in charge of making several essential hormones.

b) Describe hypothalamus as a neuroendocrine organ

- The neuroendocrine cells are found in specific regions of the hypothalamus and are regulated by afferents from higher brain centers.
- Integrated function is clearly complex and the networks betⁿ and amongst the neuroendocrine cells allows fine control to achieve homeostasis.

c) Mention the disorders of pituitary.

- Acromegaly - Craniopharyngioma
- Cushing's disease / syndrome - Growth hormone deficiency
- Prolactinoma, Rathke's cleft cyst.

d) Sketch & label the histology of pituitary gland

IV a) Sketch & Label the histological structure of Adrenal gland

b) Write the hypo & hyper function of adrenal cortex

- Controls blood sugar levels
- Supports the breakdown of carbohydrates, proteins & fats (metabolism)
- Regulates blood pressure
- Suppresses inflammation
- Regulates your sleep-wake cycle.
- Raises glucose levels when the body is under stress.

c) Describe the functions of prostaglandin

Prostaglandins play a role in the following reproductive functions.

- Conception - luteolysis - menstruation
- parturition.

- It also been proposed that prostaglandin may be the natriuretic hormone the circulating hormones which controls sodium reabsorption by the kidney.

d) Describe the hormones of pancreas

- The main hormones secreted by the endocrine gland in the pancreas are insulin, glucagon, somatostatin, pancreas.

→ maintain healthy blood sugar levels.

Q. Explain neural basis of Biological clock

- The Suprachiasmatic nucleus (SCN) is the primary circadian oscillator in the brain responsible for temporal co-ordination.
- A set of clock genes forms interlocking transcription / translation feedback loops
- A rhythm in SCN neural activity represents the functional output of the Biological clock.
- which is in a part of the brain called the hypothalamus.
- To regulate activity throughout the body

Section - A

- a) Rapid industrialization ii) High standard of living
- b) i) An economy which is marching towards economic development
- c) i) Net aggregate of commodities and services produced annually in a country =
- d)

$$PCI = \frac{\text{National Income}}{\text{Population}}$$

- e) i) Slow industrial growth
ii) Growth in population
iii) Old machinery
- f) i) The number of females per thousand males
- g) i) Climate
i) Agricultural development
- h) i) Inflation
ii) Un employment
ii) Poverty
- i) i) 2002 - 2007
- j) Shaktikanta Das
- k) The policy related to the control of money supply and to maintain price stability in the economy
- l) An estimate of income and expenditure for a set period of time

Section - B

2. i) Income Method ii) Product Method iii) Expenditure Method
3. i) Un employment, under utilisation of resources, low per capita Income, Population pressure, Low level of Technology, poor quality of Human capital, inequalities in the distribution of National Income
4. i) Reduce infant mortality rate, Reduce maternal mortality ratio, Control communicable diseases, Family planning
5. i) Economic planning achievements - increased industrialisation, increased food production, Increased employment opportunities etc.
6. Low capital, lack of training, slow industrial growth, Rapid growth of population, old technology etc.

Section - C

7. India ranks second in terms of world population
26 Indians born each minute
Adverse effects of rapidly growing population prove that India is facing population explosion
8. Price stability, full employment, economic development,
9. Functions of RBI - Bank of issue, Banker to the Government, Bankers Bank lender of last resort, Controller of credit, custodian of foreign exchange reserve
10. Tax revenue - Direct and Indirect taxes,
Non tax revenue - Money from public enterprises, Interest earn by Government, Fees penalties Grants from Central Government

Section - D

- a) Yes, India is developing economy due to increasing National Income and per capita Income, growing industrial sector, Banking sector, Social sector etc. ✓
- b) The importance of primary sector has been declining. There is growth in service sector and manufacturing sector, progress in infrastructure development, change in occupational distribution
- c) Energy crisis, under utilisation of resources, shortage of capital, low productivity, unemployment, poverty.

Free A. P. Raddi
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Section A			
a.	Indirect taxes are the taxes which are levied on the manufacture or sale of goods and services. The burden of the taxes is transferred from one person to another. Ex: VAT, Excise Duty, Service Tax etc..	2	
b.	According to section 2(52) "Goods means every kind of movable property other than money and securities but includes actionable claims, growing crops grass and things attached to or forming part of the land which are agreed to be severed before supply or under a contract of supply"	2	
c.	It is a supply made by a taxable person to a recipient comprising of two or more supplies of goods or services or both or any combination thereof, which are naturally bundled and supplied in conjunction with each other in the ordinary course of business, one of which is a principal supply.	2	
d	Time of supply means the point in time when goods or services are supplied or rendered. It helps to determine the rate of tax, value and due dates for payment of taxes.	2	
e.	Date of invoice: 1-06-2022 Date of payment: 20-06-2022 Whichever is earlier, time of supply will be 1-06-2022	2	
f.	1. levied on all inter-state transactions 2. maximum rate of IGST is 40% 3. Levied at a rate equal to central and state rate.	2	
g.	A person who has a registered business in one state in India, but wants to supply from some other state in which he is not having any fixed place of business. casual taxable person means a person who occasionally undertakes transactions involving supply of goods or services.	2	
h.	1. Voluntary Registration 2. Compulsory registration	2	
i.	Section 2(63) of CGST Act defines input tax credit means the credit of input tax. It means tax paid on purchases and claiming it deduction at the time of payment of tax on sale.	2	
j.	It is a cash ledger that is maintained by every taxpayer on common portal of GST and that contains deposits that a taxpayer has made and any tax payments made through cash. It reflects the cash deposits and payment of taxes and other dues.	2	
k.	Value of supply means the amount paid by the recipient of supply to the supplier as consideration for supply. Section 15(1) " The value of a supply of goods or services or both shall be the transaction value which is the price actually paid or payable for the said supply of goods or services or both where the supplier and recipient of the supply are not related and the price is the sole consideration for the supply."	2	
l.	CPIN: Common Portal Identification Number CIN: Challan Identification Number	2	
Section B			
2	Sl.No.	Direct Tax	Indirect Tax
	1.	Direct tax is referred to as the tax levied on income or profit and wealth of persons.	Indirect tax is a tax levied on goods or services.
	2.	Direct taxes are paid directly by person on whom the tax is levied.	Indirect taxes are paid by consumer who ultimately consumes the goods or services.

	3.	Income Tax, wealth tax and corporate tax are examples for direct tax.	Customs duty, services tax, VAT and Excise duty are the examples for indirect tax.
	4.	Under direct tax the incidence and impact of tax falls on the same person.	In indirect tax the incidence and impact fall on the different people.
	5.	Rates of direct taxes are different from person to person.	Rates of indirect taxes are not different from person to person.
	6.	Taxable event under direct tax is total Income or wealth of the assessee.	The taxable event under indirect tax may be purchase, sale or manufacture of goods.

3	<ol style="list-style-type: none"> 1. Multistage 2. Unified Tax 3. Destination based tax 4. Value Added Tax 5. Dual Model 6. Supply of Goods and services 7. Input tax credit 																									
4	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Selling price inclusive of GST</td> <td style="text-align: right;">89600</td> </tr> <tr> <td>Less : GST</td> <td style="text-align: right;">9600</td> </tr> <tr> <td>Selling price exclusive of GST</td> <td style="text-align: right;">80000</td> </tr> <tr> <td>Add: Freight</td> <td style="text-align: right;">10000</td> </tr> <tr> <td></td> <td style="text-align: right;">90000</td> </tr> <tr> <td>Less: Discount</td> <td style="text-align: right;">5000</td> </tr> <tr> <td>Value of supply</td> <td style="text-align: right;">85000</td> </tr> <tr> <td>GST @ 12% CGST – 5100</td> <td></td> </tr> <tr> <td>SGST- 5100</td> <td></td> </tr> </table>	Selling price inclusive of GST	89600	Less : GST	9600	Selling price exclusive of GST	80000	Add: Freight	10000		90000	Less: Discount	5000	Value of supply	85000	GST @ 12% CGST – 5100		SGST- 5100								
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6	<p>The composition scheme is an alternative method of tax levy under GST. The primary objective of composition scheme is to simplify compliance and reduce compliance costs for small taxpayers. A dealer whose total turnover of goods and services in a financial year below Rs.1 crore (Rs. 75 lakh for special category states) can opt for compounding scheme.</p> <p><i>CBIC has notified the increase to the threshold limit from Rs 1.0 Crore to Rs. 1.5 Crores.</i></p> <p><i>Provisions:</i></p> <p>➤ The tax payment under the composition scheme is optional to the taxable person.</p>																									

	<ul style="list-style-type: none"> ➤ The dealers with compounding Turnover up to 1.5 crore are eligible for opting composition scheme ➤ The registered person can opt to pay tax at a specified percentage of the turnover, without entering the credit chain (Input tax credit). ➤ Such registered person will neither be allowed to collect tax from his customers nor claim any input tax credit. ➤ Compounding dealers shall remain under compounding scheme till their turnover crosses threshold or they opt for out of the scheme. ➤ Such dealers don't have to apply every year to remain under the compounding scheme 																							
	<table border="1"> <thead> <tr> <th rowspan="2">Sl. No</th> <th rowspan="2">Eligible Person</th> <th colspan="2">Rate of tax cannot exceed (% of turnover)</th> <th rowspan="2">Total rate of tax cannot exceed (% of turnover in state or turnover in union territory)</th> </tr> <tr> <th>CGST</th> <th>SGST</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Manufacturer</td> <td>1%</td> <td>1%</td> <td>2%</td> </tr> <tr> <td>2</td> <td>Restaurant Services</td> <td>2.5%</td> <td>2.5%</td> <td>5%</td> </tr> <tr> <td>3</td> <td>Other supplies (traders)</td> <td>0.5%</td> <td>0.5%</td> <td>1%</td> </tr> </tbody> </table>	Sl. No	Eligible Person	Rate of tax cannot exceed (% of turnover)		Total rate of tax cannot exceed (% of turnover in state or turnover in union territory)	CGST	SGST	1	Manufacturer	1%	1%	2%	2	Restaurant Services	2.5%	2.5%	5%	3	Other supplies (traders)	0.5%	0.5%	1%	
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Section C																								
7	<p>As per the article 366 (12A) Goods and services tax means <i>"any tax on supply of goods, or services or both except taxes on the supply of the alcoholic liquor for human consumption."</i></p> <p>Reasons:</p> <p>GST eliminates the cascading effect of tax</p> <p>Easy Compliance</p> <p>'One country, one tax'</p> <p>Single Economic ZONE</p> <p>Boost in Foreign investment</p> <p>Manufacturing sector or "Make In India" will get a boost</p> <p>For Ease of starting and doing business</p> <p>Relief for business in both sales and services</p> <p>Reduction in logistics cost and time across state</p> <p>Protection from increased imports</p> <p>Boost to e-commerce industry</p> <p>For GDP growth</p>																							
8	<p>'supply' includes <i>all forms of supply of goods and/or services such as sale, transfer, barter, exchange, license, rental, lease or disposal made or agreed to be made for a consideration by a person in the course or furtherance of business.</i></p> <p>Scope: Schedule I- Activities are treated a supply even made without consideration</p> <p>Schedule II- Activities to be treated as supply of goods or services (Deemed Supply)</p> <p>Schedule III- Activities which are not supply</p> <p>Types: 1. Inter-state supply 2. Intra-state supply 3. Composite Supply 4. Mixed Supply 5. Inward supply 6. Outward supply 7. Taxable supply and exempted supply</p>																							
9	Particulars	Amount	Amount																					

Selling price of Product including of GST		560000	
Less: GST at 12% (560000x12/112)		60000	
Selling price exclusive of GST		500000	
ADD: Inclusions in transaction value Sec 15(2)			
Normal secondary packing cost	25000		
Freight	8000		
Cost of special packing	18000		
Insurance charges	2000	53000	
			53000
Less: Exclusions to Transaction Value Sec 15(3)			23000
Discount allowed			
Transaction value			530000

Particulars	Transaction value	GST
Taxable value of supply (transaction value)	530000	
CGST at 6% (530000x6/100)		31800
SGST at 6% (530000x6/100)		31800
GST Payable		63600

10

Computation of GST payable by Mr. Irfan

S.no	Particulars	Amount	Amount
1	Intra-state supply of goods		
	CGST at 9% on 14,00,000	126000	
	SGST at 9% on 14,00,000	126000	252000
2	Inter-state supply of goods		
	IGST at 18% on 800,000		144000
	Total GST payable		396000

Computation of ITC available to Mr. Irfan

Particulars	CGST	SGST	IGST
Opening ITC	40500	40500	90000
Add:			
1. ITC on intra-state purchases of goods	88200	88200	-

	2. ITC on Inter-state purchase	-	-	30600
	Total ITC available	128700	128700	120600
	Computation of Net GST payable			
	Particulars	CGST	SGST	IGST
	GST payable (output tax liability)	126000	126000	144000
	Less: ITC available	128700	128700	120600
		-2700	-2700	19400
	Less: Set off of CGST and SGST with IGST (2700+2700)	2700	2700	5400
	Net GST payable	-	-	14000
Section D				
11.	<p>a. (i) Date of invoice: 1-11-2022 Date of Removal: 16-11-2022 Whichever is earlier, time of supply will be 1-11-2022</p> <p>(ii)(i) Date of invoice: 1-11-2022 Date of Payment: 20-10-2022 Whichever is earlier, time of supply will be 20-10-2022</p> <p>b. As per section 10(1)(a) of IGST Act 2017, Where the supply involves the movement of goods, whether by the supplier or the recipient or by any other person, the place of supply for such goods is the Location of the goods at the time at which, the movement of goods terminates for delivery to the recipient. Since the movement of goods terminates in Mumbai, the place of supply of goods is at Mumbai, Maharashtra and IGST will be levied. IGST= 100,000x18/100 = 18000</p> <p>c. PAN is not mandatory for non- resident person to take registration under GST. A non-resident taxable person shall electronically submit an application, along with a self-attested copy of his valid passport, for registration duly signed and verified through electronic verification code.</p>			

SCHEME OF ASSESSEMENT

ELEMENTS OF COSTING I – 2022 By Prof. M.A.NAKARCHI

SECTION - A

Answer any TEN of the following [2 X 10 = 20]

- a) Cost Accounting is the branch of accounting dealing with the classification, recording, allocation, summarization and reporting of current and prospective costs.
- b) It is the most idle or favorable quantity of material to be ordered at a time.
- c) It is the time worked by a worker over and above the normal hours in a day or during a week.
- d) $\text{Earning} = \text{TT} \times \text{TR} + \text{TS} \div \text{ST} (\text{TT} \times \text{TR}]$
- e) 1. Ascertainment of costs 2. Determination of selling price 3. Cost Control 4. Guiding Management in business policies and decision.
- f) It refers to cost of running a machine for one hour. It is calculated by dividing the amount of factory overhead apportioned to a machine by the number of machine hours for the particulars period.
- g) Idle time is the time during which a worker produces nothing but he is paid for it or it is the difference between the workers attendance time and the time booked on the job.
- h) 1.Direct materials 2. Direct Wages 3. Direct Expenses.
- i) Materials Requisition is a formal written request by the departmental head or foreman to issue the materials.
- j) It is that quantity below which the stock of any item should be allowed to fall. It is the minimum quantity of material which must be maintained at all time.
- k) 1. Low wages 2. Bad working condition 3. Unfair promotion and transfer 4. Long hours of work 5. Illness and accident 6. Domestic Disputes.
- l) $\text{EOQ} = \sqrt{2\text{AO} \div \text{C}}$ $\text{MTAR} = \text{Value of materials consumed during the period} \div \text{Value of Average Stock}$

SECTION – B

Answer any THREE of the following [5 X 3 = 15]

2. 1. Assists to fixing selling price. 2. Helps in improving efficiency. 3. Helps in inventory control. 4. Helps in Planning and decision making. 5. Checks the accuracy of financial accounts. 6. Helps in cost control. 7. Establishes sound organizational structures. 8. Facilitates introduction of incentive schemes.
3. Cost Sheet and Sales Value

PARTICULARS		Rs.
Raw Materials as on 1-04-2020	2,00,000	
Add : Purchasing during the year	10,00,000	
	12,00,000	
Less : Raw Materials as on 31-3-2021	1,60,000	10,40,000
ADD : Direct Wages		4,00,000
PRIME COST		14,40,000
ADD : Factory Overhead		
80% on Direct Wages [4,00,000 X 80 ÷ 100]		3,20,000
		17,60,000
Add : Work in Progress as on 1 – 04 – 2020		80,000
		18,40,000
Less : Work in Progress on 31 – 03 - 2021		1,28,000
WORKS COST		17,12,000
ADD : Administrative Overhead		1,20,000

	COST OF PRODUCTION		18,32,000
ADD : Selling Overhead			40,000
	COST OF GOODS SOLD		18,72,000
ADD : PROFIT [20% on SP = 25% on Cost] = 18,72,000 X 25÷100]			4,68,000
	SALES VALUME		23,40,000

4. CALCULATION OF STOCK LEVELS

1. **ROL = Maximum Consumption X Maximum Delivery Period = 200 X 3 = 600 Units**

2. **Min Stock Level = ROL – [Avg Cons X Avg Del Period]**

Avg Cons = Max Cons + Mini Cins ÷ 2 = 200 + 160 ÷ 2 = 360 ÷ 2 = 180 Units

Avg Del Period = Max Del Period + Min Del Period ÷ 2 = 3 +1 ÷ 2 = 4 ÷ 2 = 2 Week

MIN STOCK LEVEL = 600 – [180 X 2] = 600 – [360] = 600 – 360 = 240 Units

3. **Max Stock Level = ROL + EOQ – [Min Cons X Min Del Period] = 600 + 200 – [160 X 1] = 800 – 160 = 640 Units**

5. CALCULATION OF EARNINGS UNDER ROWAN PLAN

Earnings = TT x TR + TS ÷ ST [TT x TR] TS = ST – TT = 20 - 16 = 4 Hrs

= 16 x 80 + 4 ÷ 20 [16 x 80]

= 1280 + 0.2 [1280]

= 1280 + 256 = **Rs. 1536**

6. CALCULATION OF MACHINE HOUR RATE

PARTICULARS	TOTAL	PER HOUR
I. FIXED CHARGES [1000 ÷ 200]	1000	5
II. MAINTENANCE CHARGES		
• Cost of Repairs [25,000 ÷ 10,000]		2.5
III. OPERATING CHARGES		
• Dep [1,20,000 – 20,000 ÷ 10,000]		10
• Power [10 X 2]		20
MACHINE HOUR RATE		37.5

SECTION – C

Answer any TWO of the following [15 X 2 = 30]

7. CLASSIFICATION OF COSTS - Meaning and Classification.

Classification of costs is the process of grouping costs into different divisions or groups according to their common characteristics. It is systematic placement of like items together according to their common features.

- I. Nature or Element wise classification of costs.
 1. Material Cost 2. Labour Costs 3. Expenses
- II. Functional wise classification of costs
 1. Production Cost 2. Administrative Cost 3. Selling and Dist Costs 4. Research and Development Costs
- III. Behavior wise classification of costs
 1. Fixed Costs 2. Variable Costs
- IV. Time wise classification of costs
 1. Historical Costs 2. Pre determined costs
- V. Controllability wise classification of costs
 1. Controllable costs 2. Non controllable costs
- VI. Classification of costs for Managerial Decisions

1. Relevant Costs
2. Irrelevant Costs
3. Imputed Costs
4. Opportunity Costs
5. Sunk Costs
6. Out of Pocket costs
7. Junk Costs
8. Implicit Costs.

8. STORES LEADGER ACCOUNT UNDER LIFO METHOD

DATE	RECEIPTS			ISSUES			BALANCE		
	Q	R	Amt	Q	R	Amt	Q	R	Amt
01-01-21	---	---	----	---	---	----	500	21	10,500
03-01-21	---	---	----	100	21	2,100	400	21	8,400
06-01-21	1600	20	32,000	---	---	----	400	21	8,400
							1600	20	32,000
07-01-21	---	---	----	600	20	12,000	400	21	8,400
							1000	20	20,000
08-01-21	40 (R to S)	21	840	---	---	----	400	21	8,400
							1000	20	20,000
							40	21	840
12-01-21	600	24	14,400	---	---	----	400	21	8,400
							1000	20	20,000
							40	21	840
							600	24	14,400
15-01-21	---	---	----	600	24	14,400	400	21	8,400
				40	21	840	1000	20	20,000
18-01-21	200	25	5,000	---	---	----	400	21	8,400
							1000	20	20,000
							200	25	5,000
20-01-21	---	---	----	200	25	5,000	400	21	8,400
				40	20	800	960	20	19,200
22-01-21	---	---	----	80 (R to V)	20	1,600	400	21	8,400
							880	20	17,600
25-01-21	400	20.50	8200	---	---	----	400	21	8,400
							880	20	17,600
							400	20.50	8,200
29-01-21	---	---	----	400	20.50	8,200	400	21	8,400
				100	20	2,000	780	20	15,600
31-01-21	50 (Surp)	20	1,000	---	---	----	400	21	8,400
							830	20	1,000

Note :

1. Return to store are taken back into stores at the rate at which they were issued and issued in the very next issue.
2. Returns to vendor are entered at current issue rate as the price of material purchased on 22-01-21 is already charged to production.
3. Freight of Rs. 200 is added materials purchased on 25-01-21

9. Calculation on Labour Hour Rate under Simultaneous Equation Method

a) Calculation of Total Cost of R Dept.

$$R = 27,500 + 10\% \text{ of } S \text{ ----- (I)} \quad S = 19,000 + 20\% \text{ of } R \text{ ----- (II)}$$

$$R = 27,500 + 1/10 (19,000 + 1/5 X) \quad R = 27,500 + 1,900 + 1/5 X$$

$$R = 29,400 + 1/50 X$$

$$R - 1/50 X = 29,400$$

$$49/50 X = 29,400$$

$$X = 29,400 \times 50/49$$

R = Rs. 30,000

b) Calculation of Total Cost of S Dept

$$S = 19,000 + 20\% \text{ of } R$$

$$S = 19,000 + 20\% \text{ of } 30,000$$

$$S = 19,000 + 6,000$$

$$S = \text{Rs. } 25,000$$

c) Calculation of Actual Cost

$$\text{Actual Cost} = \text{Total Cost} - \% \text{ Given}$$

$$R = 30,000 - 20\% \text{ of } 3,000$$

$$R = 30,000 - 6,000$$

$$R = \text{Rs. } 24,000$$

$$S = 25,000 - 10\% \text{ of } 25,000$$

$$S = 25,000 - 2,500$$

$$S = \text{Rs. } 22,500$$

SECONDARY DISTRIBUTION SUMMARY

PARTICULARS	BASE	TOTAL	A	B	C	D
O / H as per PDS	-----	3,10,000	1,20,000	80,000	60,000	50,000
Dept R	4:6:3:3	24,000	6,000	9,000	4,500	4,500
Dept S	3:2:2:2	22,500	7,500	5,000	5,000	5,000
TOTAL		3,56,500	1,33,500	94,000	69,500	59,500

d) Calculation of Labour Hour Rate

$$\text{LHR} = \text{Total Overhead} \div \text{Total Labour Hour}$$

$$\text{Dept A} = 1,33,500 \div 1,000 = \text{Rs. } 133.5$$

$$\text{Dept B} = 94,000 \div 1,500 = \text{Rs. } 62.67$$

$$\text{Dept C} = 69,500 \div 2,000$$

$$\text{Rs. } 34.75$$

$$\text{Dept D} = 59,500 \div 2,500 \text{ Rs. } 23.8$$

10. CHIRU INDUSTRIES Ltd., Statement of Cost for the year ended 31st Dec – 2021

PARTICULARS	Rs.	Rs.
Opening Stock of Raw Materials	20,000	
Add: Purchase of Raw Materials	2,37,500	
Carriage Inward	6,250	
Less : Closing Stock of Materials	25,000	2,38,750
Cost of Materials Consumed		2,38,750
Direct wages		87,500
PRIME COST		3,26,250
ADD : FACTORY OVERHEAD		
• Works manger salary	15,000	
• Factory Employees Salaries	30,000	
• Factory Rent, taxes and insurance	3,625	
• Power Expenses	4,750	
• Other production expenses	21,500	74,875
Gross Works Cost		4,01,125
Add : Opening Work in Progress		7,500
		4,08,625
Less : Closing Work in Progress		5,000
WORKS COST		4,03,625
ADD : ADMINISTRATIVE OVERHEAD		
• General Expenses	16,250	16,250
		4,19,875

	COST OF PRODUCTION		3,000
Add : Opening Stock of Finished Goods			4,22,875
			7,500
Less: Closing Stock of Finished Goods			4,15,375
	COST OF GOODS SOLD		
ADD : SELLING AND DISTRIBUTION OVERHEAD		4,625	4,625
• Selling Expenses			4,20,000
	COST OF SALES		10,000
ADD : PROFIT			
	SALEAS FOR THE YEAR		4,30,000

NOTE : Income tax, Dividend, Debenture Interest, Transfer to sinking fund, Goodwill written off, Payment of sales Tax are non cost items. Hence these are the excluded in cost.

SECTION – D

CASE STUDY (COMPULSORY) [1 x 15 = 15]

11.

a) Comparative Statement of Earnings Under Halsey and Rowan Bonus Plan.

$$\text{EARNINGS UNDER HALSEY PLAN} = E = TT \times TR + \frac{1}{2} [TS \times TR]$$

$$\text{EARNINGS UNDER ROWAN PLAN} = E = TT \times TR + TS \div ST [TT \times TR]$$

WORKERS	TIME SAVED [TS = ST-TT]	BONUS		EARNINGS	
		HALSEY	ROWAN	HALSEY	ROWAN
A	2	20	32	180	192
B	4	40	48	160	168
C	5	50	50	150	150
D	4	60	48	140	128
E	3	70	42	130	102

b) Analysis of above table lead to following conclusions

i. Bonus goes on increase with increase in time saved under Halsey Plan, whereas it increases at higher rate upto 50% saving in time thereafter it starts to decline under Rowan plan.

ii. Bonus remain same under both the plans at 50 % saving in time.

iii. Bonus increases at much higher rate initially but latter on decrease under Rowan plan whereas it goes on increasing steadily under Halsey plan.

iv. There is no automatic check on production under Halsey plan whereas there is automatic check on production under Rowan plan.

c) From the Point of Management : Halsey Plan is suggested as it provides benefits of 50% on time saved by workers.

From the Point of Workers : Rowan plan is suggested as it provides bonus at much higher rate. However it is not suitable for exceptionally highly efficient workers.



36426/D260

Reg. No.

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IV Semester B.Com. 3 Degree Examination, September/October - 2022
BUSINESS STATISTICS - II
(Repeater)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

- 1) Use of Simple calculator is allowed.
ಸರಳ ಗಣಕಯಂತ್ರದ ಉಪಯೋಗವನ್ನು ಮಾನ್ಯಮಾಡಲಾಗಿದೆ.
- 2) Statistical tables are supplied on request
ಸಾಂಖ್ಯಿಕ ರೇಖೆ ಕಾಗದವನ್ನು ಬೇಡಿಕೆಯ ಮೇರೆಗೆ ಪೂರೈಸಲಾಗುವುದು.
- 3) Section - D is Compulsory.
ವಿಭಾಗ-ಡಿ ಕಡ್ಡಾಯವಾಗಿದೆ.

SECTION - A

ವಿಭಾಗ-ಅ

Answer any TEN of the following.

(10×2=20)

ಕೆಳಗಿನವುಗಳಲ್ಲಿ-ಬೇಕಾದ ಹತ್ತಕ್ಕೆ ಉತ್ತರಿಸಿರಿ.

1. a) Write any two properties of binomial distribution.
ದ್ವಿಪದೋಕ್ತಿ ವಿತರಣೆಯ ಯಾವುದಾದರೂ ಎರಡು ಲಕ್ಷಣಗಳನ್ನು ಬರೆಯಿರಿ.
- b) Define Poisson Distribution.
ಪೊಸನಾ ವಿತರಣೆಯ ವ್ಯಾಖ್ಯೆ ನೀಡಿ.
- c) Write any two examples of Poisson distribution.
ಪೊಸನಾ ವಿತರಣೆಯ ಯಾವುದಾದರೂ ಎರಡು ಉದಾಹರಣೆಯನ್ನು ಬರೆಯಿರಿ.
- d) Define standard Normal variate.
ನಿಯತ ಪ್ರಸಾಮಾನ್ಯ ಚಲಕದ ವ್ಯಾಖ್ಯೆ ನೀಡಿ.
- e) The first and third quartiles of normal distribution are 20.5 and 42.5. Find its median.
ಪ್ರಸಾಮಾನ್ಯ ಚಲಕದಲ್ಲಿ 1 ನೇ ಮತ್ತು 3ನೇ ಚತುರ್ಥಕವು 20.5 ಮತ್ತು 42.5 ಇರುತ್ತವೆ. ಆದರೆ ಮಧ್ಯಕವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.
- f) State any two merits rank correlation.
ಶ್ರೇಣಿ ಸಹಸಂಬಂಧ ಗುಣಾಂಕದ ಯಾವುದಾದರೂ ಎರಡು ಉಪಯೋಗಗಳನ್ನು ತಿಳಿಸಿರಿ.
- g) Write any two properties of regression coefficients.
ಸಿಂಚಲನಾ ಗುಣಾಂಕಗಳ ಎರಡು ಗುಣಧರ್ಮಗಳನ್ನು ತಿಳಿಸಿರಿ.
- h) What is control chart?
ನಿಯಂತ್ರಣ ಚಿತ್ರಪಟ ಎಂದರೇನು?
- i) What is process control?
ಸಂಸ್ಕರಣ ನಿಯಂತ್ರಣ ಎಂದರೇನು?

[P.T.O.]

- j) Define Transportation problem.
- k) Name the differential control limits.
- l) Name the methods of solving Transportation problem.

SECTION - B

ವಿಭಾಗ-ಬಿ

(3×5=15)

- 1. Write the properties of Normal distribution.
- 2. Distinguish between process control and product control.
- 3. From the following data, calculate Spearman's Rank correlation coefficient.
- 4. The number of mistakes made by a Typist follows a Poisson distribution with mean 3. Find out the probability that he makes.
- 5. At least one mistakes.
- 6. For the following TP find Initial Basic Feasible solution (IBFS) by matrix minima method.

Origins O_i	Destinations			Supply
	D_1	D_2	D_3	
O_1	2	2	3	10
O_2	4	1	2	15
O_3	1	3	1	40
Demand	20	15	30	65

ಈ ಕೆಳಗಿನ ಸಾಗಾಣಿಕೆ ಸಮಸ್ಯೆಗೆ ಮ್ಯಾಟ್ರಿಕ್ಸ್ ಮಿನಿಮಾ ವಿಧಾನದ ಮುಖಾಂತರ IBFS ಕಂಡುಹಿಡಿಯಿರಿ.

ಒರಿಜಿನ್ಸ್ O_i	ಡಿಸ್ಟಿನೇಷನ್ಸ್ D_j			ಸಪ್ಲೈ
	D_1	D_2	D_3	
O_1	2	2	3	10
O_2	4	1	2	15
O_3	1	3	1	40
Demand	20	15	30	65

SECTION - C

ವಿಭಾಗ-ಕೆ

(2×15=30)

- 7. Answer any TWO of the following.
 - a) Explain in brief shewart control chart.
 - b) A company manufactures PARAS pens. Samples of 200 pens each are observed for defectives and the results are records as follows:
- | | | | | | | | | | | |
|-------------------|----|----|---|----|----|----|----|----|----|----|
| Sample No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| No. of Defectives | 10 | 16 | 7 | 43 | 18 | 26 | 30 | 33 | 26 | 29 |
- Draw P chart and give your comments.
- 8. Explain the Types of correlation.
 - a) From the following data, calculate Karl - Pearson co-efficient of correlation.
 - b) Arithmetic mean of price and supply are 15 and 24

Price (Rs.)	11	12	13	14	15	16	17	18	19
Supply	30	29	28	25	15	9	22	21	18



2017

9. Solve the following TP using.
 a) Matrix - Minima Method.
 b) Vogel's Approximation method.

		Destination				Supply
		D ₁	D ₂	D ₃	D ₄	
Origin	O ₁	1	2	1	4	30
	O ₂	3	3	2	1	50
	O ₃	4	2	5	9	20
	Demand	20	40	30	10	

ಈ ಕೆಳಗಿನ ಸಾಗಾಣಿಕೆ ಸಮಸ್ಯೆಯನ್ನು

- a) ಮ್ಯಾಟ್ರಿಕ್ಸ್ ಮಿನಿಮಾ ವಿಧಾನ
 b) ವೋಗಲ್ಸ್ ಅಪ್ರೊಕ್ಸಿಮೇಷನ್ ವಿಧಾನ
 ಇವುಗಳಿಂದ ಬಿಡಿಸಿರಿ.

ಡೆಸ್ಟಿನೇಷನ್

		Destination				Supply
		D ₁	D ₂	D ₃	D ₄	
ಒರಿಜಿನ್	O ₁	1	2	1	4	30
	O ₂	3	3	2	1	50
	O ₃	4	2	5	9	20
	Demand	20	40	30	10	

10. Explain the properties of Binomial and Poisson distribution.
 ಬಿನಾಮಿಯಲ್ ಮತ್ತು ಪಾಸಾನ್ ವಿತರಣೆಯ ಗುಣಲಕ್ಷಣಗಳನ್ನು ವಿವರಿಸಿರಿ.

SECTION - D

ವಿಭಾಗ-ಡ

11. Case Study (Compulsory)
 ಪ್ರಕರಣ ಅಧ್ಯಯನ (ಕಡ್ಡಾಯ ಪ್ರಶ್ನೆ)

2018

(1×15=15)

The following data is the price and demand of a commodity.

Price (Rs.):	10	12	13	12	16	15
Demand :	40	38	43	45	37	43

- a) Calculate the two regression equations and estimate.
 b) Estimate the likely demand when the price is Rs.20.

ಒಂದು ವಸ್ತುವಿನ ಬೆಲೆ ಮತ್ತು ಬೇಡಿಕೆಗಳನ್ನು ಈ ಕೆಳಗೆ ಕೊಡಲಾಗಿದೆ.

ಬೆಲೆ (ರೂ.):	10	12	13	12	16	15
ಬೇಡಿಕೆ:	40	38	43	45	37	43

- a) ಎರಡೂ ಹಿಂಚಲನಾ ಸಮೀಕರಣವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.
 b) ಬೆಲೆಯು 20 ರೂಪಾಯಿ ಇದ್ದಾಗ ಬೇಡಿಕೆ ಎಷ್ಟು ಇರುತ್ತದೆ, ಅಂತ ಅಂದಾಜಿಸಿರಿ.

- 2) a) Properties of PD → ① The number of observations n is fixed
 ② Each observation is independent
- b) Poisson distribution refers to the process of determining the probability of events repeating within a specific time frame.
- c) Examples of PD → ① No. of deaths occurring in a city in a day ② No. of telephone calls per minute
- d) Standard Normal variate: A normal variate with mean = 0 and SD = 1. It is denoted as Z
- e) Median = $42.5 - 20.5 = 22$,
- f) Merits of Rank correlation → ① It is simple method of calculating ② It is convenient to calculate
- g) Two properties of R-co-eff: → ① There are two regression co-efficients they are b_{xy} & b_{yx}
 ② Both the regression coefficients must have the same sign;
- h) Control chart is a graph used to study how a process changes over time.
- i) Process control is the active changing of the process based on the results of process monitoring
- j) T.P. defined as "It is a special type of app where the objectives consist in minimizing transportation cost of a given community from a number sources or origins to a number of destinations"
- k) Different control limits → ① Upper control limit ② Central control limit ③ Lower control
- l) Methods of TP → ① NWC Method ② Minimum matrix method ③ Vogel's.

SECTION-B

- 2) Properties of Normal distribution →
- ① Normal distribution is a continuous distribution
 - ② Normal curve is symmetrical about the mean
 - ③ " " is a Bell-shaped curve
 - ④ " " is asymptotic to the base line
 - ⑤ " " Normal curve is mesokurtic.

⑤ $\lambda = 3 \quad P(x) = \frac{e^{-\lambda} \lambda^x}{x!}$

① No mistakes $P(x=0) = \frac{e^{-3} 3^0}{0!} = \frac{e^{-3}}{1} = e^{-3} = 0.0498$

② At least one mistake $P(1 \leq x) = 1 - P(0) = 1 - 0.0498 = 0.9502$

3) Process control

- ① process control is applied during production process.
- ② process control is two types: online quality & offline quality control
- ③ process control is an integral stage of textile manufacture.

Product control

- ① product control is applied after production process
- ② product control is not type
- ③ product control focus on sorting & isolating defective product.

4)

M	N	R ₁	R ₂	d = R ₁ - R ₂	d ²
39	47	7	8	-1	1
65	53	5	7	-2	4
62	52	6	6	0	0
90	86	2	2	0	0
82	62	3	4	-1	1
75	68	4	3	1	1
25	60	8	5	3	9
98	91	1	1	0	0
					16

$R = 1 - \frac{6 \sum d^2}{N^3 - N} = \frac{6(16)}{(83) - 8} = 1 - 0.1904 = 0.80$

6)

	D ₁	D ₂	D ₃	Σ
O ₁	20	2	3	10
O ₂	40	15	2	15
O ₃	1	30	130	40
D.	20	15	30	65

TP = $2 \times 10 + 4 \times 10 + 1 \times 5 + 3 \times 10 + 1 \times 30$
 $= 20 + 40 + 5 + 30 + 30$
 $= 125$

7) $\bar{p} = \frac{fd}{nk} = \frac{238}{200 \times 10} = 0.119$ $q = 1 - \bar{p} = 1 - 0.119 = 0.881$, $n\bar{p} = 200 \times 0.119 = 23.8$
 $\sqrt{n\bar{p}q} = \sqrt{200 \times 0.119 \times 0.881} = 4.57$

control limits are:-
 $CL = n\bar{p} = 23.8$
 $LCL = n\bar{p} - 3\sqrt{n\bar{p}q} = 10.07$
 $UCL = n\bar{p} + 3\sqrt{n\bar{p}q} = 37.53$
 \therefore The process is out of control.

8) a) Types of correlation \rightarrow ① Positive ② Negative ③ zero correlation.

b) $\bar{y} = \frac{\Sigma y}{n} = \frac{188 + 46}{9} \therefore 2y = \frac{188 + 46}{9} = 46 = 24 \times 9 + 188 = 28$

$\Sigma x = 235$ $\Sigma y = 216$, $\Sigma x^2 = 2085$, $\Sigma y^2 = 5408$, $\Sigma xy = 3159$

$r = \frac{n \Sigma xy - (\Sigma x)(\Sigma y)}{\sqrt{[n \Sigma x^2 - (\Sigma x)^2] \times [n \Sigma y^2 - (\Sigma y)^2]}} = \frac{9(3159) - (235)(216)}{\sqrt{[9(2085) - (235)^2] \times [9(5408) - (216)^2]}} = -0.699$
 $= -0.699$

9) a) Matrix Minima Method:-

	D ₁	D ₂	D ₃	D ₄	Supply
O ₁	2	1	4	30	
O ₂	3	3	2	50	
O ₃	4	2	5	9	20
Demand	20	40	30	10	100

	D ₂	D ₃	D ₄	Sup
O ₁	2	1	4	10
O ₂	3	2	1	50
O ₃	2	5	9	20
	40	30	10	

	D ₂	D ₃	D ₄	
O ₂	3	2	1	50
O ₃	2	5	9	40
	40	20	10	

	D ₂	D ₃	
O ₂	3	2	40
O ₃	2	5	20
	40	20	

	D ₂	D ₃	
O ₂	3	2	20
O ₃	2	5	20
	40		

Delete "D₁"

Delete "O₁"

Delete "D₄"

Delete "D₃"

Delete "O₃"

Total TC = $(1 \times 20) + (1 \times 10) + (1 \times 10) + (2 \times 20) + (2 \times 20) + (3 \times 20) = 180$

b) Vogel's App. method =

	D ₁	D ₂	D ₃	D ₄	Supply	Diff
O ₁	1	2	1	4	30	(0)
O ₂	3	3	2	1	50	(1)
O ₃	4	2	5	9	20	(2)
Demand	20	40	30	10		
Diff.	(2)	(1)	(4)	(3)		

total Transport = $(1 \times 10) + (2 \times 20) + (1 \times 20) + (1 \times 10) + (2 \times 20) + (3 \times 20) = 180$
 $= 10 + 40 + 20 + 10 + 40 + 60 = 180$

10) properties of Binomial distribution \rightarrow ① A trial has only two possible outcomes.
 ② There is a fixed number 'n' of identical trials.
 ③ The trials of the experiment are independent of each other.
 ④ If 'p' represents the probability of a success, then (1-p) is the probability of a failure.

- ① The events are independent
- ② mean = variance = λ .
- ③ $np = \lambda$ is finite where λ is constant.

SECTION-C

11) case study

x	y	x ²	y ²	xy
10	40	100	1600	400
17	38	144	1444	456
13	43	169	1849	559
12	45	144	2025	540
16	37	256	1369	592
15	43	225	1849	645
78	246	1038	10136	3192

$\bar{x} = \frac{\Sigma x}{n} = \frac{78}{6} = 13$

$\bar{y} = \frac{\Sigma y}{n} = \frac{246}{6} = 41$

$b_{xy} = \frac{n \Sigma xy - (\Sigma x)(\Sigma y)}{n \Sigma y^2 - (\Sigma y)^2} = \frac{6(3192) - (78)(246)}{6(10136) - (246)^2} = -0.12$

$b_{yx} = \frac{n \Sigma xy - (\Sigma x)(\Sigma y)}{n \Sigma x^2 - (\Sigma x)^2} = \frac{6(3192) - (78)(246)}{6(1038) - (78)^2} = 0.25$

The Regression Equations:-

x on y
 $(x - \bar{x}) = b_{xy}(y - \bar{y})$
 $x - 13 = -0.12(y - 41)$
 $= -0.12y + 4.92 + 13$
 $= -0.12y + 17.92$

y on x
 $(y - \bar{y}) = b_{yx}(x - \bar{x})$
 $y - 41 = 0.25(x - 13)$
 $= 0.25x + 3.25 + 4$
 $= 0.25x + 44.25$

when the price is $x = 20$
 $y = -0.12x + 17.92$
 $= -0.12(20) + 17.92$
 $= (-2.4) + 17.92$
 $= 15.52$

Dr P. R. Rajalakshmi

48082

Reg. No.

9481801094

III Semester B.Com. (NEP) Degree Examination, March/April - 2023

Business Statistics

Paper - DSC

(Regular)

Time : 3 Hours

Maximum Marks : 60

Instructions to Candidates:

- 1) All sections are compulsory.
ಎಲ್ಲಾ ವಿಭಾಗಗಳು ಕಡ್ಡಾಯ
- 2) Answer All questions according to Internal choice.
ಅಂತರಿಕ ಅಯ್ಕೆಗನುಗುಣವಾಗಿ ಎಲ್ಲಾ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.
- 3) Working steps should be mentioned.
ಬಿಡಿಸುವ ಹಂತಗಳನ್ನು ಸರಿಯಾಗಿ ನಮೂದಿಸಿರಿ.
- 4) Simple calculators is allowed.
ಸರಳ ಗಣಕಯಂತ್ರ ಉಪಯೋಗಿಸಲು ಅನುಮತಿ ಇದೆ.
- 5) Question No. 11 Case Study is Compulsory.
ಪ್ರಶ್ನೆ-11 ಪ್ರಕರಣ ಅಧ್ಯಯದ ಕಡ್ಡಾಯವಾಗಿದೆ.

Section-A

ವಿಭಾಗ - ಅ

Answer any Five of the following.

(5×2=10)

ಬೇಕಾದ ಐದಕ್ಕೆ ಉತ್ತರಿಸಿರಿ.

1. a) Define Business Statistics.
ವ್ಯವಹಾರಿಕ ಸಂಖ್ಯಾಶಾಸ್ತ್ರದ ವ್ಯಾಖ್ಯೆ ನೀಡಿರಿ.
- b) For a frequency distribution, coefficient of variation is 60% and arithmetic mean is 20. Find Standard deviation.
ಒಂದು ಆವೃತ್ತಿ ಸಂಖ್ಯಾ ವಿತರಣೆಯ ವಿಚಲನೆ ಗುಣಾಂಕ 60% ಮತ್ತು ಸರಾಸರಿ 20 ಆಗಿವೆ. ಹಾಗಿದ್ದರೆ ನಿಯತ ವಿಚಲನೆ ಕಂಡುಹಿಡಿಯಿರಿ.
- c) State two methods of calculating cost of living index number.
ಜೀವನ ವೆಚ್ಚ ಸೂಚ್ಯಂಕವನ್ನು ಕಂಡುಹಿಡಿಯುವ ಎರಡು ವಿಧಾನಗಳನ್ನು ತಿಳಿಸಿರಿ.
- d) Define Probability mass function (PMF).
ಸಂಭವ ಗುಂಪು ಫಲನೆ ವ್ಯಾಖ್ಯೆ ನೀಡಿರಿ.
- e) What is Correlation?
ಸಹಸಂಬಂಧ ಎಂದರೇನು ?

[P.T.O.]



- f) State any two Properties of Median.
ಮಧ್ಯಾಂಕದ ಎರಡು ಲಕ್ಷಣಗಳನ್ನು ತಿಳಿಸಿರಿ.
- g) Find the Co-efficient of range for the following data.
x - 20, 30, 32, 18, 16, 10, 50, 24.
ಕೆಳಗಿನ ನ್ಯಾಸದಿಂದ ವ್ಯಾಪ್ತಿ ಗುಣಾಂಕವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.
x - 20, 30, 32, 18, 16, 10, 50, 24.

Section-B

ವಿಭಾಗ - ಬ

Answer any Three of the following.

(3×5=15)

ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಬೇಕಾದ ಮೂರು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

2. Calculate Mean, Median and Mode for the values:

20, 21, 22, 24, 23, 22, 20, 25, 22.

ಕೆಳಗಿನ ಮೌಲ್ಯಗಳಿಂದ ಸರಾಸರಿ, ಮಧ್ಯಾಂಕ ಮತ್ತು ಬಹುಲಕಗಳನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

20, 21, 22, 24, 23, 22, 20, 25, 22.

3. Calculate Mean deviation from mean for the following data.

x	10	11	12	13	14	15
f	3	12	21	14	7	2

ಈ ಕೆಳಗಿನ ದತ್ತಾಂಶಗಳಿಂದ ಸರಾಸರಿಯಿಂದ ವಿಚಲತೆಯನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

x	10	11	12	13	14	15
f	3	12	21	14	7	2

4. Construct the Consumer Price Index from the following data.

Group	Index Number	Weights
Food	352	48
Fuel	220	10
Clothing	230	8
House Rent	160	12
Miscellaneous	190	15

ಕೆಳಗೆ ಕೊಟ್ಟ ಕೋಷ್ಟಕದ ಸಹಾಯದಿಂದ ಜೀವನ ವೆಚ್ಚ ಸೂಚ್ಯಂಕ ಸಂಖ್ಯೆ ನಿರ್ಮಿಸಿರಿ.

ಗುಂಪು	ಸೂಚ್ಯಂಕ	ವೆಚ್ಚ ತೂಕಗಳು
ಆಹಾರ	352	48
ಇಂಧನ	220	10
ಬಟ್ಟೆ	230	8
ಮನೆ ಬಾಡಿಗೆ	160	12
ಇತರೆ	190	15



5. Using the following information, find the Regression line of x on y.

	x	y
Mean	40	50
SD	5	10

and Correlation coefficient = 0.8 And also estimate the value of x when y=42.

ಕೆಳಗಿನ ಮಾಹಿತಿಯನ್ನು ಉಪಯೋಗಿಸಿ y ದ ಮೇಲೆ x ದ ಹಿಂಚಲನಾ ರೇಖೆಯನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

	x	y
ಸರಾಸರಿ	40	50
ಮಾನಕ ವಿಚಲನೆ	5	10

ಮತ್ತು ಸಹಸಂಬಂಧ ಗುಣಾಂಕ = 0.8 ಮತ್ತು y=42 ಇದ್ದಾಗ x ದ ಬೆಲೆಯನ್ನು ಅಂದಾಜು ಮಾಡಿರಿ.

6. Define Standard deviation. State any three properties of Standard deviation.

ಮಾನಕ ವಿಚಲನೆ ವ್ಯಾಖ್ಯೆ ಕೊಡಿರಿ. ಮಾನಕ ವಿಚಲನೆಯ ಯಾವುದಾದರೂ ಮೂರು ಗುಣಧರ್ಮಗಳನ್ನು ಬರೆಯಿರಿ.

Section-C

ವಿಭಾಗ - ಕ

Answer any Two questions

(2×10=20)

ಬೇಕಾದ ಎರಡು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿರಿ.

7. Find Mean, Median and Mode for the following data.

CI	0-10	10-20	20-30	30-40	40-50	50-60	60-70
f	7	13	20	30	20	13	7

ಕೆಳಗಿನ ನ್ಯಾಸಕ್ಕೆ ಸರಾಸರಿ, ಮಧ್ಯಾಂಕ ಮತ್ತು ಬಹುಲಕಗಳನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

ವರ್ಗಾಂತರ	0-10	10-20	20-30	30-40	40-50	50-60	60-70
ಆವೃತ್ತಿ	7	13	20	30	20	13	7

8. Calculate Karl Pearson's Coefficient of correlation for the following data.

Price	14	16	17	18	19	20	21	22	23
Supply	84	78	70	75	66	67	62	58	60

ಕೆಳಗಿನ ನ್ಯಾಸಕ್ಕೆ ಕಾರ್ಲ್ ಪಿಯರಸನ್ ಸಹಸಂಬಂಧ ಗುಣಾಂಕವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.

ಬೆಲೆ	14	16	17	18	19	20	21	22	23
ಪೂರೈಕೆ	84	78	70	75	66	67	62	58	60

9. From the following data, Calculate Price Index Number by using

i) Laspeyre's method

ii) Paasche's method

iii) Fisher's method

Commodity	Base Year		Current Year	
	Price	Quantity	Price	Quantity
A	2	40	6	50
B	4	50	8	40
C	6	20	9	30
D	8	10	6	20



ಕೆಳಗಿನ ನ್ಯಾಸಗಳಿಂದ

- ಲಾಸ್ಟೆಯರ್
- ಪಾಶ್ಚಿಯ ಮತ್ತು
- ಫಿಶರ್ ವಿಧಾನಗಳನ್ನು ಉಪಯೋಗಿಸಿ ಬೆಲೆ ಸೂಚ್ಯಂಕ ಕಂಡುಹಿಡಿಯಿರಿ.

ವಸ್ತುಗಳು	ಮೂಲ ವರ್ಷ		ಚಾಲ್ತಿ ವರ್ಷ	
	ಬೆಲೆ	ಪರಿಮಾಣ	ಬೆಲೆ	ಪರಿಮಾಣ
A	2	40	6	50
B	4	50	8	40
C	6	20	9	30
D	8	10	6	20

- Define Normal Distribution. State the Properties of Normal Distribution.
ಸಾಮಾನ್ಯ ವಿತರಣೆಯನ್ನು ವ್ಯಾಖ್ಯಾನಿಸಿ. ಸಾಮಾನ್ಯ ವಿತರಣೆಯ ಗುಣಲಕ್ಷಣಗಳನ್ನು ತಿಳಿಸಿ.
- Define the Probability of an event. State the addition theorem of probability for any two events.
ಸಂಭವನೀಯತೆಯ, ವ್ಯಾಖ್ಯೆ ಕೊಡಿರಿ. ಎರಡು ನಿರ್ಣಯದ ಸಂಕಲನ ಸಂಭವನೀಯತೆಯನ್ನು ಬರೆಯಿರಿ.

Section-D

ವಿಭಾಗ - ಡ

Case Study (Compulsory Question)

(1×15=15)

ಪ್ರಕರಣ ಅಧ್ಯಯನ (ಕಡ್ಡಾಯ ಪ್ರಶ್ನೆ)

- The following table gives the Agricultural Production.
Index (x) and the index of wholesale prices (y) in 5 years.

X :	104	110	112	114	120
Y :	106	116	140	175	173

- Find r_{xy} the correlation coefficient between x and y. Interpret the result.
- Find the regression equation of Wholesale price index on the agricultural production index.
- Obtain the estimate of Wholesale price index when the agricultural production index is 125.

ಕೆಳಗಿನ ಕೋಷ್ಟಕವು ಕೃಷಿ ಉತ್ಪಾದನಾ ಸೂಚ್ಯಂಕ (x) ಮತ್ತು ಸಗಟು ಬೆಲೆಗಳ ಸೂಚ್ಯಂಕ (y) ವನ್ನು 5 ವರ್ಷಗಳಲ್ಲಿ ನೀಡುತ್ತದೆ.

X :	104	110	112	114	120
Y :	106	116	140	175	173

- x ಮತ್ತು y ನಡುವಿನ ಪರಸ್ಪರ ಸಂಬಂಧವನ್ನು r_{xy} ಅನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ. ಫಲಿತಾಂಶವನ್ನು ಅರ್ಥೈಸಿಕೊಳ್ಳಿ.
- ಕೃಷಿ ಉತ್ಪಾದನಾ ಸೂಚ್ಯಂಕದಲ್ಲಿ ಸಗಟು ಬೆಲೆ ಸೂಚ್ಯಂಕದ ಹಿನ್ನೆಡೆ ಸಮೀಕರಣವನ್ನು ಕಂಡುಹಿಡಿಯಿರಿ.
- ಕೃಷಿ ಉತ್ಪಾದನಾ ಸೂಚ್ಯಂಕವು 125 ಆಗಿರುವಾಗ ಸಗಟು ಬೆಲೆ ಸೂಚ್ಯಂಕದ ಅಂದಾಜನ್ನು ಪಡೆದುಕೊಳ್ಳಿ.

$$5) \bar{x} = 40, \bar{y} = 50, \sigma_x = 5, \sigma_y = 10, r_{xy} = 0.8,$$

$$b_{xy} = \frac{\sigma_{xy}}{\sigma_y} = \frac{0.8(5)}{10} = \frac{4}{10} = 0.4,$$

The Regression equation of x on y is: —

$$(x - \bar{x}) = b_{xy} (y - \bar{y})$$

$$x - 40 = 0.4(y - 50)$$

$$= 0.4y + 20 - 40$$

$$x = 0.4y + 20$$

Estimate the value of x when $y = 42$

$$x = 0.4(42) + 20$$

$$= 16.8 + 20$$

$$x = \underline{\underline{36.8}}$$

6) Standard deviation is a measure of the amount of variation or dispersion of a set of values.

Properties of SD: — ① It cannot be negative ② SD is only used to measure spread or dispersion around the mean of a data set.

③ SD is sensitive to outliers.

EXC-C

CI	f	Middle value - x	fx	CF
0-10	7	5	35	7
10-20	13	15	195	20
20-30	20	25	500	40
30-40	30	35	1050	70
40-50	20	45	900	90
50-60	13	55	715	103
60-70	7	65	455	110
<u>N=110</u>		<u>$\Sigma fx = 3850$</u>		

$$\text{Mean}(\bar{x}) = \frac{\Sigma fx}{N} = \frac{3850}{110} = 35$$

$$\text{Median}(M) = \frac{N}{2} = \frac{110}{2} = 55 \text{ lying in CF } 70$$

∴ Median class = 30-40
 $l = 30, f = 30, m = 40, c = 10$

$$M = l + \left[\frac{\frac{N}{2} - m}{f} \times c \right]$$

$$= 30 + \left[\frac{55 - 40}{30} \times 10 \right]$$

$$= 30 + \frac{150}{30} = 30 + 5 = \underline{\underline{35}}$$

Mode is highest frequency = 30.
 $l = 30, f = 30, f_1 = 20, f_2 = 20, c = 10$

$$\text{Mode}(z) = l + \left[\frac{f - f_1}{2f - f_1 - f_2} \times c \right]$$

$$= 30 + \left[\frac{30 - 20}{2(30) - 20 - 20} \times 10 \right] = 30 + \frac{100}{80 - 0} = \underline{\underline{31.67}}$$

Price (X)	Supply (Y)	x^2	y^2	xy
14	84	196	7056	1176
16	78	256	6084	1248
17	70	289	4900	1190
18	66	324	5625	1350
19	67	361	4356	1254
20	62	400	4489	1340
21	62	441	3844	1302
22	58	484	3364	1276
23	60	529	3600	1380
<u>170</u>	<u>620</u>	<u>3280</u>	<u>43318</u>	<u>11516</u>

$$r = \frac{\Sigma xy - (\Sigma x)(\Sigma y)}{\sqrt{[\Sigma x^2 - (\Sigma x)^2][\Sigma y^2 - (\Sigma y)^2]}}$$

$$r = \frac{n \cdot \sum xy - (\sum x)(\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}} = \frac{9(11516) - (170)(620)}{\sqrt{[9(3280) - (170)^2] \times [9(43216) - (620)^2]}}$$

$$= \frac{103644 - 105400}{\sqrt{(29520) - (28900) \times (389862 - 384400)}} = \frac{1756}{\sqrt{(620)(15462)}} = \frac{1756}{1840.23} = 0.9542$$

$r = 0.9542$

9)

commodity	P_0	P_1	Q_0	Q_1	$P_0 Q_0$	$P_0 Q_1$	$P_1 Q_0$	$P_1 Q_1$
A	2	6	40	50	80	100	240	300
B	4	8	50	40	200	160	400	1000 320
C	6	9	20	30	120	180	180	270
D	8	6	10	20	80	160	60	120
Total					480	600	880	1010

i) Laspeyres's method :-

$$P_{01} = \frac{\sum P_1 Q_0}{\sum P_0 Q_0} \times 100 = \frac{880}{480} \times 100 = 183.33\%$$

ii) Paasche's method :-

$$P_{01} = \frac{\sum P_1 Q_1}{\sum P_0 Q_1} \times 100 = \frac{1010}{600} \times 100 = 168.33\%$$

iii) Fisher's method :-

$$P_{01} = \sqrt{\frac{\sum P_1 Q_0}{\sum P_0 Q_0} \times \frac{\sum P_1 Q_1}{\sum P_0 Q_1}} \times 100 = \sqrt{\frac{880}{480} \times \frac{1010}{600}} \times 100 = 175.67\%$$

10) a) A Normal distribution is the bell-shaped frequency distribution curve of a continuous random variable.

Properties :- ① The curve is bell-shaped and it is symmetrical

② The mean, median and mode are equal

③ The curve is asymptotic to the X-axis.

④ Total area under the curve is unity.

b) Probability of an event is a numerical measure which indicates the chance of occurrence of that event.

Let A and B be two events with respective probabilities $P(A)$ and $P(B)$. Then the probability of occurrence of at least one of these two events is-

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

Section-D

11) Case study

x	y	x ²	y ²	xy
104	106	10816	11236	11024
110	116	12100	13456	12760
112	140	12544	19600	15680
114	175	12996	30625	19950
120	173	14400	29929	20760
<u>560</u>	<u>710</u>	<u>62856</u>	<u>104846</u>	<u>80174</u>

① The coefficient of correlation is:-

$$r_{xy} = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2] \times [n \sum y^2 - (\sum y)^2]}} = \frac{5(80174) - (560)(710)}{\sqrt{[5(62856) - (560)^2][5(104846) - (710)^2]}}$$

② The Regression equation of y on x:-
 $\bar{x} = \frac{\sum x}{n} = \frac{560}{5} = 112$, $\bar{y} = \frac{\sum y}{n} = \frac{710}{5} = 142$

$$= \frac{3270}{\sqrt{680 \times 20130}} = 0.8838$$

High positive correlation

$$b_{yx} = \frac{n \sum xy - (\sum x)(\sum y)}{n \sum x^2 - (\sum x)^2} = \frac{5(80174) - (560)(710)}{5(62856) - (560)^2} = \frac{3270}{680} = 4.809$$

y on x is:-

$$(y - \bar{y}) = b_{yx}(x - \bar{x})$$

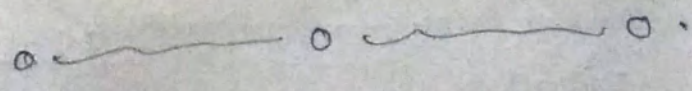
$$y - 142 = 4.809(x - 112)$$

$$y = 4.809x - 4.809 \times 112 + 142$$

$$y = 4.809x - 396.608$$

③ The estimate of wholesale price index (y) when x = 125

$$y = 4.809(125) - 396.608$$

$$y = 204.517$$




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Chikodi
has participated as Resource person/Chairman/Delegate/presented paper
on Innovations in Banking and Financial Services at the
National Seminar on "Recent trends in Commerce & Management
Education" held on 1-07-2023 at Kannada Bhavan, Nehru Nagar,
Belagavi

Dr. Chandrashekhara R. Gudasi
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Dr. Akash S.B.
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Prof. M. Ramachandragouda
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Certificate

Prof./Dr./Mr. Abhishek Naik
of K.L.E. Society's B.K. Arts, Science and Commerce college
has participated as Resource person/Chairman/Delegate/presented paper
on Recent Trends in Marketing at the
National Seminar on "Recent trends in Commerce & Management
Education" held on 1-07-2023 at Kannada Bhavan, Nehru Nagar,
Belagavi


Dr. Chandrashekhar R. Gudasi
President, RCUCMCTA


Dr. Akash S.B.
Finance Officer
Rani Channamma University, Belagavi

Prof. M. Ramachandragouda
Hon. Vice Chancellor
Rani Channamma University, Belagavi

Prof. H.Y. Kamble
Chairman, P.G. Dept. of Commerce
Rani Channamma University, Belagavi





Rani Channamma University, Belagavi
Commerce and Management Colleges Teachers'
Association and




PG Department of Commerce, Rani Channamma University, Belagavi
NATIONAL SEMINAR ON

RECENT TRENDS IN COMMERCE & MANAGEMENT EDUCATION

Certificate

Prof./Dr./Mr. Parshwanath Jayagond.....
of K.L.E. Society's B. K. Arts, Science and Commerce college
Ch. Kodige
has participated as Resource person/Chairman/Delegate/presented paper
on Current Trends in Digital Marketing..... at the
National Seminar on "Recent trends in Commerce & Management
Education" held on 1-07-2023 at Kannada Bhavan, Nehru Nagar,
Belagavi


Dr. Chandrashekhara R. Gudasi
President, RCUCMCTA

Prof. M. Ramachandragouda
Hon. Vice Chancellor
Rani Channamma University, Belagavi


Dr. Akash S.B.
Finance Officer
Rani Channamma University, Belagavi

Prof. H. Y. Kamble
Chairman, P.G. Dept. of Commerce
Rani Channamma University, Belagavi





Rani Channamma University, Belagavi
Commerce and Management Colleges Teachers'
Association and



PG Department of Commerce, Rani Channamma University, Belagavi
NATIONAL SEMINAR ON

RECENT TRENDS IN COMMERCE & MANAGEMENT EDUCATION

Certificate

Prof. / Dr/ Miss..Laxmi.....Pujari.....
of...K.L.E...Society's...B.K...Arts...Science...and...Commerce.....college
Ch,Kodi
has participated as Resource person/Chairman/ Delegate/ presented paper
onInnovations in Marketing..... at the
National Seminar on " Recent trends in Commerce & Management
Education " held on 1-07-2023 at Kannada Bhavan, Nehru Nagar,
Belagavi

Dr.Chandrashekhar R.Gudasi
President, RCUCMCTA

Dr.Akash S.B.
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**Rani Channamma University, Belagavi
Commerce and Management Colleges Teachers'
Association and**



**PG Department of Commerce, Rani Channamma University, Belagavi
NATIONAL SEMINAR ON**

RECENT TRENDS IN COMMERCE & MANAGEMENT EDUCATION

Certificate

*Prof./Dr/Miss. Poojnima Bagi.....
of K.L.E Society's B.K. Arts Science and Commerce..... college
Chikodi
has participated as Resource person/Chairman/Delegate/presented paper
on Impact of Mergers and Acquisitions on Employability at the
National Seminar on " Recent trends in Commerce & Management
Education " held on 1-07-2023 at Kannada Bhavan, Nehru Nagar,
Belagavi*

Dr. Chandrashekhar R. Gudasi
President, RCUCMCTA

Dr. Akash S.B.
Finance Officer
Rani Channamma University, Belagavi

Prof. M. Ramachandragouda
Hon. Vice Chancellor
Rani Channamma University, Belagavi

Prof. H.Y. Kamble
Chairman, P.G. Dept. of Commerce
Rani Channamma University, Belagavi



Celebration of National Science Day 2K23

A

Report

on

Projects on “Applications of Mathematics”

Organized by

Department of Mathematics



KLE Society's

Basavaprabhu Kore Arts, Science and Commerce College,

Chikodi-591201



KLE Society's
Basavaprabhu Kore Arts,
Science & Commerce
College, Chikodi-591201



IQAC Initiative

**Celebrating National Science Day,
2023**

**Theme: Projects on Applications of
Mathematics**

**Organized by
Department of Mathematics**

Registration

**Contact: Smt. P. A. Patil
Smt. V. C.
Bastawade**

Date: 14/02/2023

Venue: CS

LAB

Time: 10.30am

**Prof. M. B. Roit
HOD**

**Dr. V. V. Manjalapur Prof. U. R. Rajput
IQAC Coordinator Principal**



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EST-1969

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Website: klesbkclegechikodi.edu.in ☎ : 08338 – 272176 Email: kles_bkcc@rediffmail.com

IQAC Initiative
Department of Mathematics
Organizes
Competition on
THEME: Projects on “Applications of Mathematics”

On the eve of National Science Day 2023, under the theme “*Global Science for Global Wellbeing*” the Department organizes Power Point Presentation competition entitled: Projects on “**Applications of Mathematics**”. The competition was held on 14th February 2023 at 11.00am in the Computer Lab. All semester students are witnessed the event and 12 participants enthusiastically participated and presented their views on applications of mathematics on various mathematical concepts.

Objectives:

- To enhance the knowledge of Mathematics through applications
- Motivate students to inculcate the mathematical concepts through applications
- To understand the applications of Mathematics in day today life.

The details of prize winners are as follows,

SL NO.	Roll No.	Name of the Student	Title of the Presentation	Class	Award
01	29	Mr. Bharamu A. Donge	Applications of Permutations	B.Sc III Semester	First Place
	44	Mr. Kumar M. Hikadi	Mathematics Applications in Science		
	71	Omkar C. Mone	Ancient Mathematics of India and its Applications		
02	33	Daneshwari S. Kolalagi	Applications of Permutations and Combinations in day today Life	B.Sc III Semester	Second Place
	91	Roopali P. Walake			
	126	Swati N. Saisale			
03	12	Mahammadarif A. Dange	Applications of Calculus	B.Sc V Semester	Third Place



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Results of POWER POINT PRESENTATION COMPETITION

Group No.	Roll No.	Name of the Student	Class	Result(out of 10)			
				J1	J2	J3	Average
01	33	Daneshwari S. Kolalagi	B.Sc III Semester	8	7	8	8.33
	91	Roopali P. Walake					
	126	Swati N. Saisale					
02	29	Mr. Bharamu A. Donge	B.Sc III Semester	9	9	8	8.66
	44	Mr. Kumar M. Hikadi					
	71	Omkar C. Mone					
03	105	Shraddaha B. Mutagi	B.Sc III Semester	6	6	7	6.33
	128	Vaishnavi K. Mali					
	137	Niharika T. Banavanna					
04	05	Arya S. Bhabuje	B.Sc III Semester	6	5	6	5.66
	06	Bhagyashri V. Malage					
05	12	Mahammadarif A. Dange	B.Sc V Semester	7	7	8	7.33

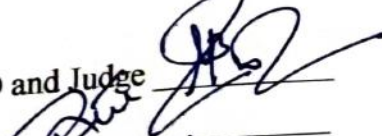


Based on the above analysis the result of the event is as follows

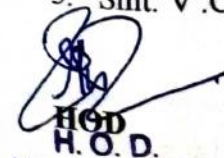
- **First Place** : Group 02 average marks 8.66
- **Second Place** : Group 01 average marks 8.33
- **Third Place** : Group 05 average marks 7.33

Out Comes:


- Students understand the mathematical concepts with its applications
- This event helps students to boost their ability to think mathematical concepts through applications
- Motivated the students to understand how mathematics is applicable in day today life


Signature of Judges:

1. Shri. M. B. Rotti, HOD and Judge 
2. Smt. P. A. Patil, Judge 
3. Smt. V. C. Bastwade, Judge 


H.O.D.
MATHEMATICS

B. K. College, CHIKODI


IQAC COORDINATOR
IQAC Coordinator
KLE's Basavaprabhu Kore
Arts, Science and Commerce College,
Chikodi - 591 201


PRINCIPAL
KLE'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201



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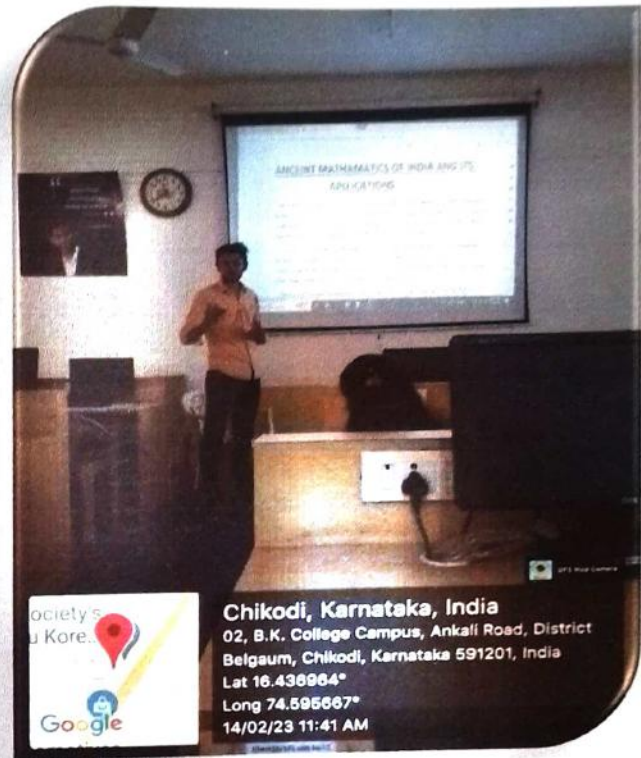
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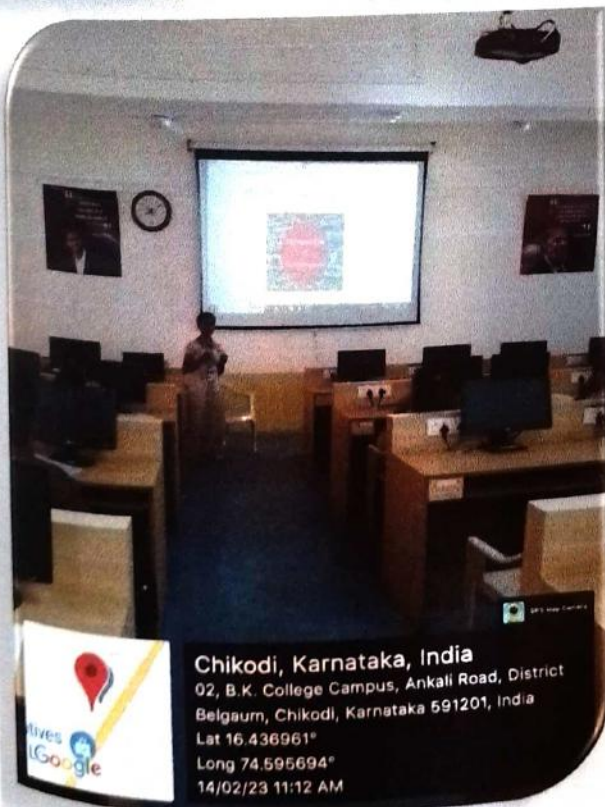
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Chikodi, Karnataka, India
02, B.K. College Campus, Ankali Road, District
Belgaum, Chikodi, Karnataka 591201, India
Lat 16.436947°
Long 74.595694°
14/02/23 12:09 PM



Chikodi, Karnataka, India
02, B.K. College Campus, Ankali Road, District
Belgaum, Chikodi, Karnataka 591201, India
Lat 16.436964°
Long 74.595667°
14/02/23 11:41 AM



Chikodi, Karnataka, India
02, B.K. College Campus, Ankali Road, District
Belgaum, Chikodi, Karnataka 591201, India
Lat 16.436961°
Long 74.595694°
14/02/23 11:12 AM



Chikodi, Karnataka, India
02, B.K. College Campus, Ankali Road, District
Belgaum, Chikodi, Karnataka 591201, India
Lat 16.436963°
Long 74.595678°
14/02/23 11:26 AM

Vibes of Events: Students presenting their views on the theme



KLE Society's
Basavaprabhu Kore Arts, Science and Commerce
College Chikodi

IQAC initiative



Department of Physics

Organises

Quiz Program

On the eve of National Science Day 2023, BSc students on the theme

Global Science for Global Wellbeing

Date and Venue: 04.12.2023 and Sabha Bhavan

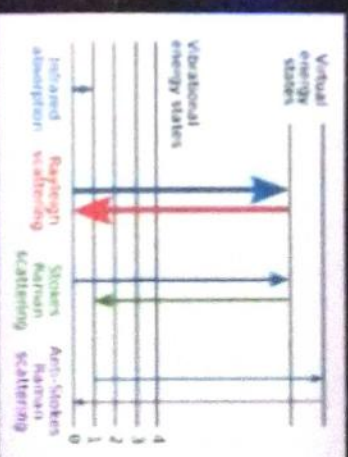


Dr. Ramanna R
Organizer

Prof. B N Havaraddi
HOD

Dr. Vinayak Manjalapur
IQAC Coordinator

Prof U R Rajput
Principal





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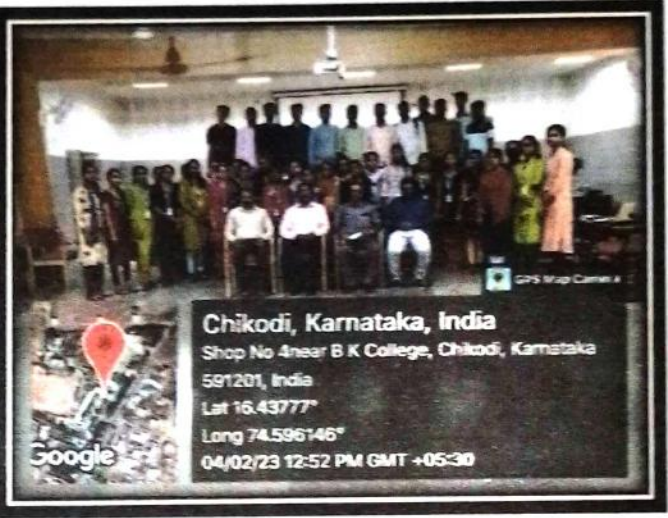
04/02/2023

Department of Physics

Title of the Programme	Physics Quiz competition on eve of National Science Day - 2023
Time and Date	11.00 am to 2.00 pm 04/02/2023
Place	KLE Society's Basavaprabhu Kore Arts Science and Commerce College Chikodi
No. of Beneficiaries	45
Objectives	<ul style="list-style-type: none">• Aim of the program is to introduce basics of general Physics students.• How quickly students can respond to the questions• Explain the answers in objective and detailed explanation and improve the group discussions• Increase the self confidence
Summary of the Proceedings	<ul style="list-style-type: none">• Dr. R. Ramanna welcomed the students and started the program.• Shri Anand framed the objective questions and Dr S Matteppanavar conducted the program by asking questions and answers.• Dr Sunil Patil and Prof B N Havaraddi were the judges for this event and Prof Havaraddi addressed the gathering.• Dr Raghu rendered the vote of thanks.
Outcome of the Program	<ul style="list-style-type: none">• Create awareness and importance of National Science Day• Students understood various topics of general Physics.• Time management learning.• Students understanding level increased.• Increased the self confidence level and group discussions.


HOD
Head of the
Department of Physics
K. L. College, CHIKODI


PRINCIPAL
KLES'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201



Group Photo with Participants



Quiz – Participants at the venue



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04/02/2023

Students Attendance

Sl. No	Name of the Student	Class	Signature
	<u>Group NO 1</u> ✓		
1	Lavanya. Teradale	B.Sc. V sem	
2	Smriti. Korbhe	B.Sc V sem	
3	Necta. maledaver	B.Sc V sem	
4	Keerti. Kattalagi	— » —	
	<u>Group NO 2</u> ✓		
1	Abhishek. A. Pakale	Bsc II nd Sem	
2	Sumit Dharwade	— » —	
3	Suraj. Arage	— » —	
4	Dodkar Manoj	— » —	
	<u>Group NO 3</u> ✓		
1	Megha. Ingale	BSc III rd Sem	
2	Musarat. patil	— » —	
3	Akanksha. Kore	— » —	
4	madhu. Malagi	— » —	



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04/02/2023

Students Attendance

Sl. No	Name of the Student	Class	Signature
	<u>Group No 4</u> ✓		
1	Arshwarya Adarshi	Bsc III rd sem.	Ajmer
2	Prasanna Devanagol	B.Sc III rd Sem	P.K. Devanagol
3	Madhumati Megannavar	- " -	MN
4	Radika Mannikeri	Bsc - III rd sem	Radika
	<u>Group No 5</u> ✓		
1	Megha Havaladar	B.Sc III Sem	Megha
2	Sneha Benade	B.Sc III sem	Sneha
3	Rasmi Ankali	B.Sc III sem	R.S. Ankali
4	Madhumati Valke	B.Sc III Sem	Madhu
	<u>Group No 6</u> ✓		
1	Kaveri Kamble	BSC I sem	Kaveri
2	Akshata Kamble	- " " -	Akshata
3	Pragati Paranjape	BSC I sem	Pragati
4	Ashruti Naganure	BSC I Sem	Ashruti
	<u>Group 7</u> ✓		
1	Kumar H. H. Kadi.	B.Sc - III rd sem	Kumar
2	Bharmu Donge		Bharmu
3	Shankar Manjari	B.Sc - III rd sem	Shankar
4	Mallesh Mugadum	B.Sc III rd sem	Mallesh
	<u>Group No 8</u> ✓		
1	Sanya Latte		
2	Aditi Manile		
3	Laxmi Shirale	Bsc III rd sem	L.B. Shirale
4	Nisarga Patil	- " -	Nisarga
	<u>Group No 9</u> ✓		
1	Junet Mujawar	BSC III sem	Junet
2	Mahamad Makandar	BSC III sem	MAS dan
3	A.S. Gowdi	B.Sc III Sem	Gowdi
4	Mamadkharja Makandar	- " -	Mamadkharja
5	Arif Donge	BSC V th Sem	Arif

DEPARTMENT OF PHYSICS

QUIZ COMPETITION

MCQ 1: Angle through which an object has moved is called it's

- A. linear displacement
- B. linear distance
- C. *angular displacement***
- D. angular distance

MCQ 2: Object moving along a circular path is

- A. in equilibrium
- B. *not in equilibrium***
- C. not moving with constant speed
- D. in random motion

MCQ 3: Speed is unchanged because work done on an object is

- A. *zero***
- B. positive
- C. negative
- D. infinite

MCQ 4: According to Newton's 2nd law the object's acceleration and centripetal force are

- A. at right angles to each other
- B. anti parallel to each other
- C. make acute angle with each other
- D. *in same direction***

MCQ 5: Centripetal force is directed towards the

- A. tangent to circle
- B. *center***
- C. normal to circle
- D. parallel to circle

MCQ 6: As compared to sound waves the frequency of radio waves is

- A. lower
- B. higher**
- C. equal
- D. may be higher or lower

MCQ 7: At the end of communication system, the signal is converted from radio to

- A. sound**
- B. mechanical energy
- C. kinetic energy
- D. potential energy

MCQ 8: Energy is lost in wires due to

- A. heating
- B. resistance
- C. conduction
- D. both A and B**

MCQ 9: Geostationary satellite has period

- A. twice of Earth
- B. same as Earth**
- C. half of Earth
- D. quarter of Earth

MCQ 10: Variation in amplitude or frequency of carrier wave is called

- A. amplitude modulation
- B. frequency modulation
- C. modulation**
- D. bandwidth

MCQ 11: Energy transferred per unit charge is

- A. e.m.f
- B. current
- C. potential difference**
- D. conventional current

MCQ 12: Electrons which are free to move around are also called

- A. conduction electrons**
- B. valence shell electrons
- C. inner electrons
- D. Electron sea

MCQ 13: By increasing the current, the drift velocity

- A. decreases
- B. increases**
- C. remains constant
- D. becomes zero

MCQ 14: Particles involved in the movement within material are

- A. protons
- B. electrons**
- C. neutrons
- D. positrons

MCQ 15: Number of satellites in geostationary orbits are

- A. 100
- B. 200
- C. 300**
- D. 400

— 2nd Round :-

MCQ 16: Geostationary satellites have lifetime of nearly

- A. 20 years
- B. 10 years**
- C. 50 years
- D. 60 years

MCQ 17: Time taken to complete a revolution around a planet is called

- A. orbital period**
- B. time period
- C. frequency
- D. wavelength

MCQ 18: Gravitational potential is always

- A. infinite
- B. zero
- C. positive
- D. negative**

MCQ 19: The closer satellite is to Earth, its speed should be

- A. more fast**
- B. more slow
- C. zero
- D. any constant value

MCQ 20: Normal force exerted per unit area by gas on walls of container is

- A. temperature
- B. energy
- C. pressure**
- D. friction

MCQ 21: Escape velocity for a particle is about

- A. 5 km s^{-1}
- B. 8 km s^{-1}
- C. 11 km s^{-1}**
- D. 14 km s^{-1}

MCQ 22: Law which relates pressure and volume of gas is

- A. Charles's law
- B. Avogadro's law
- C. Boyle's law**
- D. ideal gas law

MCQ 23: As compared to the volume occupied by gas, the volume of particles is

- A. more
- B. infinite
- C. negligible**
- D. less than the volume

MCQ 24: Pressure of gas depends on the

- A. density of gas
- B. mean square speed of gas molecules
- C. both A and B**
- D. temperature

MCQ 25: speed of ultrasound depends upon

- A. medium
- B. amplitude
- C. material**
- D. wavelength

MCQ 26: Bones look white in x-ray photograph because

- A. they are bad absorbers of x-rays
- B. they reflect x-rays
- C. they are good absorbers of x-rays**
- D. they are bad absorbers of ultraviolet rays

MCQ 27: Wavelength of x-rays is in range

- A. 10^{-8} to 10^{-13} m
- B. 10^{-7} to 10^{-14} m
- C. 10^{-10} to 10^{-15} m
- D. 10^2 to 10^9 m

MCQ 28: An instrument commonly used for the measurement of atmospheric pressure is known as

- A. Manometer
- B. Barometer**
- C. Calorimeter
- D. Potentiometer

MCQ 29: Density of water in kg m^{-3} is

- A. 1000**
- B. 100
- C. 10 000
- D. 4000

MCQ 30: Total number of magnetic field lines passing through an area is called

- A. magnetic flux density
- B. magnetic flux**
- C. e.m.f
- D. voltage



FINAL RANK LIST

MSC BOTANY COURSE FOR THE ACADEMIC YEAR 2021-22

Sl No	Reg. No	Name	Att.	Max. Marks	Sec. Marks	% / CGPA	Rank No	Caste	Coll Code	College Name
1	BT201405	MASUM PANWALE	D \ 1	2400	2114	88.08	1	IIB	9420	BK COLLEGE OF ARTS, SCIENCE & COMMERCE COLLEGE, CHIKKODI
2	BT201010	LAXMI PATIL	D \ 1	2400	2097	87.38	2	IIA	9401	RANI CHANNAMMA UNIVERSITY P.G. CAMPUS, VIDYASANGAMA, BELAGAVI
3	BT201209	SAMATA HIREGOUDAR	D \ 1	2400	2097	87.38	2	IIIB	9413	GOVINDRAM SEKSARIA SCIENCE COLLEGE, BELAGAVI
4	BT201007	DANESHWARI DUNDAGE	D \ 1	2400	2091	87.13	3	IIIB	9401	RANI CHANNAMMA UNIVERSITY P.G. CAMPUS, VIDYASANGAMA, BELAGAVI

03/03/2023
Registrar (Evaluation)

Rani Channamma University, Belagavi

Copy To,

1. Registrar, Rani Channamma University, Belagavi.
2. Finance Officer, Rani Channamma University, Belagavi.
3. P.S Vice-Chancellor, Rani Channamma University, Belagavi.
4. The Principals of all Colleges affiliated to Rani Channamma University, Belagavi
5. Web Site Copy
6. Office Copy

FINAL RANK LIST

B.SC COURSE FOR THE ACADEMIC YEAR 2021-22

Sl No	Reg. No	Name	Att.	Max. Marks	Sec. Marks	% / CGPA	Rank No	Caste	College Code	College Name
1	S1939659	SHREEDEVI K. ARAKERI	F/01	3800	3747	98.61	1	IIA	6260	TUNGAL SCHOOL OF BASIC & APPL, JAMKHANDI
2	S1935990	SOUMYA BURKI	F/01	3800	3687	97.03	2	IIIB	6204	BASAVESHWAR SCIENCE COLLEGE, BAGALKOT
3	S1914050	NIRMALA MATHAD	F/01	3800	3682	96.89	3	IIIB	4204	J E S SHRI K A LOKAPUR ARTS, , ATHANI
4	S1919591	SUKSHAY PADRE	F/01	3800	3657	96.24	4	IIIB	4288	G I B ARTS, SCIENCE & COMMERC, NIPPANI
5	S1920321	SOUMYA CHALAWADI	F/01	3800	3652	96.11	5	GM	4300	D V V S'S ARTS COLLEGE & T P , SANKESHWAR
6	S1916816	VISHAL VEERABHADRANNAVAR	F/01	3800	3645	95.92	6	IIIB	4251	B K COLLEGE OF ARTS, SCIENCE , CHIKKODI
7	S1939663	SHWETA L. CHOUGULE	F/01	3800	3636	95.68	7	IIIB	6260	TUNGAL SCHOOL OF BASIC & APPL, JAMKHANDI
8	S1938216	SOUMYA SAVADI	F/01	3800	3631	95.55	8	IIA	6222	BLDEA'S COMMERCE, BHS ARTS & , JAMAKHANDI
9	S1914559	SHARADA GANGAPPA GADADAVAR	F/01	3600	3435	95.42	9	GM	4208	G G D ARTS, B M P COMMERCE & , BAILHONGAL
10	S1938153	SATYAVATI KUMBAR	F/01	3800	3616	95.16	10	GM	6222	BLDEA'S COMMERCE, BHS ARTS & , JAMAKHANDI

03/03/2023

Registrar (Evaluation)

Rani Channamma University, Belagavi

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2. Finance Officer, Rani Channamma University, Belagavi.
3. P.S Vice-Chancellor, Rani Channamma University, Belagavi.
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RANI CHANNAMMA UNIVERSITY

(ನ್ಯಾಕ್ ಮಾನ್ಯತೆ B+ ಗ್ರೇಡ್)

Vidyasangama, Belagavi - 591156



Annual Convocation-2023
ವಾರ್ಷಿಕ ಘಟಕೋತ್ಸವ-೨೦೨೩

ಸೋಮವಾರ, ೨೦ನೆಯ ಮಾರ್ಚ್ ೨೦೨೩, ಮುಂಜಾನೆ ೧೧-೦೦ ಗಂಟೆಗೆ

ಸ್ಥಳ : ಸುವರ್ಣ ವಿಧಾನಸೌಧ, ಬೆಳಗಾವಿ

20th March 2023 | Monday | 11:00 am

Venue : Suvarna Vidhanasoudha, Belagavi

ರಾಣಿ ಚನ್ನಮ್ಮ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ
RANI CHANNAMMA UNIVERSITY, BELAGAVI

Vidyasangama, Belagavi - 591 156, Karnataka, INDIA



Rank Certificate

*This is to certify that Mr. / Ms. VISHAL
VEERABHADRANNAVAR bearing Registration No.
S1916816 has been awarded Sixth Rank*

In

Bachelor Of Science

*at the 11th Annual Convocation of Rani Channamma University,
Belagavi held on Monday, the 20th of March 2023
The Examinations were held during Sep / Oct 2022.*

Registrar (Evaluation)



Vice-Chancellor

ಕ್ರ.ಸಂ: ರಾಚವಿ/ಬೆಳಗಾವಿ/ಪವಿ-22/2022-23/4876

ದಿನಾಂಕ: 17.02.2023

PROVISIONAL RANK LIST

The Provisional Rank List of M.COM course for the Academic Year 2021-22 has been prepared. The Dean/Director/Chairman is requested to go through the Provisional rank holders list of October-2022 Examination. If any discrepancies are found you are hereby informed to bring it to the notice The Registrar Evaluation on or before 28.02.2023.

Sl No	Reg. No	Name	Att.	Max. Marks	Sec. Marks	% / CGPA	Rank No	Caste	Coll Code	College Name
1	MC201802	ANKITA RAJAGOUDA PATIL	D \ 1	2400	1908	79.50	1	IIIB	9423	KLES G.I. BAGEWADI ARTS, SCIENCE & COMMERCE COLLEGE, NIPPANI
2	MC201037	POOJA PARASANAVAR	D \ 1	2400	1901	79.21	2	CAT- I	9401	RANI CHANNAMMA UNIVERSITY P.G. CAMPUS, VIDYASANGAMA, BELAGAVI
3	MC201603	BIBIBATUL DESAI	D \ 1	2400	1890	78.75	3	IIB	9420	BK COLLEGE OF ARTS, SCIENCE & COMMERCE COLLEGE, CHIKKODI


Registrar (Evaluation)

Rani Channamma University, Belagavi

Copy To,

1. Registrar, Rani Channamma University, Belagavi.
2. Finance Officer, Rani Channamma University, Belagavi.
3. P.S Vice-Chancellor, Rani Channamma University, Belagavi.
4. The Principals of all Colleges affiliated to Rani Channamma University, Belagavi
5. Web Site Copy
6. Office Copy

ರಾಣಿ ಚನ್ನಮ್ಮ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಬೆಳಗಾವಿ
RANI CHANNAMMA UNIVERSITY, BELAGAVI

Vidyasangama, Belagavi - 591 156, Karnataka, INDIA



Rank Certificate

*This is to certify that Mr. /Ms. BIBIBATUL DESAI bearing
Registration No. MC201603 has been awarded Third Rank*

In

Master Of Commerce

*at the 11th Annual Convocation of Rani Channamma University,
Belagavi held on Monday, the 20th of March 2023*

The Examinations were held during October 2022.



[Signature]

Registrar (Evaluation)



[Signature]

Vice-Chancellor



ರಾಣಿ ಚನ್ನಮ್ಮ ವಿಶ್ವವಿದ್ಯಾಲಯ
RANI CHANNAMMA UNIVERSITY
(ನ್ಯಾಕ್ ಮಾನ್ಯತೆ B+ ಗ್ರೇಡ್)
Vidyasangama, Belagavi - 591156



Annual Convocation-2023
ವಾರ್ಷಿಕ ಘಟಕೋತ್ಸವ-೨೦೨೩

ಸೋಮವಾರ, ೨೦ನೆಯ ಮಾರ್ಚ್ ೨೦೨೩, ಮುಂಜಾನೆ ೧೧-೦೦ ಗಂಟೆಗೆ
ಸ್ಥಳ : ಸುವರ್ಣ ವಿಧಾನಸೌಧ, ಬೆಳಗಾವಿ

20th March 2023 | Monday | 11:00 am
Venue : Suvarna Vidhanasoudha, Belagavi



K.L.E. SOCIETY'S EST-1969
BASAVAPRABHU KORE ARTS, SCIENCE AND
COMMERCE
COLLEGE, CHIKODI – 591 201.

Accredited at **A⁺** Grade With **3.42 CGPA** in 4th Cycle

Website: klesbkcollegechikodi.edu.in ☎ : 08338 – 272176 Email: kles_bkcc@rediffmail.com

PG DEPARTMENT OF COMMERCE

M.COM TOPPERS FOR THE YEAR 2021-22

Sl No	Name of the Student	Marks Obtained	Percentage	Rank
1	Bibibatul Desai	1890	78.75	1 st
2	Parvati Immadi	1869	77.87	2 nd
3	Madhu Jadhav	1863	77.62	3 rd


HOD
Department of Commerce




PRINCIPAL
KLES'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201

**K. L. E. Society's
Basavaprabhu Kore Arts, Science and Commerce College Chikodi
Department of Botany**

B. Sc. VI Semester Results November 2022

Sl. No.	Reg. No.	Name of the students	Paper I				Total	Paper II				Total	I & II	%	Class
			Th.	In.	Pr.	In.		Th.	In.	Pr.	In.				
1	S1916607	Aishwarya Sane	70	19	37	10	136	66	17	39	10	132	268	89.33	DIST
2	S1916609	Akanksha Patil	68	18	37	10	133	60	12	38	10	120	253	84.33	DIST
3	S1916612	Akkini Vinod	49	17	35	10	111	59	16	34	10	119	230	76.67	DIST
4	S1916633	Basavaraj Chougale	57	15	34	9	115	54	12	38	9	113	228	76.00	DIST
5	S1916639	D. Dasari Vinay	54	17	35	9	115	67	18	37	9	131	246	82.00	DIST
6	S1916650	Isha Jain	65	20	38	10	133	72	18	38	10	138	271	90.33	DIST
7	S1916651	Jeevan Kagale	54	15	34	9	112	58	15	35	9	117	229	76.33	DIST
8	S1916656	Kaveri Khot	76	20	40	10	146	77	20	40	10	147	293	97.67	DIST
9	S1916659	Kavita Shipurkar	58	19	38	10	125	64	20	37	10	131	256	85.33	DIST
10	S1916660	Keerthi Gadiwaddar	75	20	40	10	145	77	20	40	10	147	292	97.33	DIST
11	S1916664	Krutika Kallatti	69	20	39	10	138	71	19	39	10	139	277	92.33	DIST
12	S1916666	Laxmi Naik	70	20	39	10	139	74	20	39	10	143	282	94.00	DIST
13	S1916667	Madhu Ramalad	64	17	38	10	129	65	14	35	10	124	253	84.33	DIST
14	S1916670	Manali Patil	75	20	40	10	145	73	20	39	10	142	287	95.67	DIST
15	S1916679	Nandini Magadum	60	19	38	10	76	56	17	39	10	122	198	66.00	CLASS
16	S1916680	Naveen Sadalage	52	16	38	9	115	63	16	38	10	127	242	80.67	DIST
17	S1916683	Nikhil Naik	50	16	36	9	111	66	16	36	9	127	238	79.33	DIST
18	S1916692	Pooja Kumbar	68	18	39	10	135	65	19	37	10	131	266	88.67	DIST
19	S1916694	Pooja Patil	45	17	39	9	110	45	18	35	10	108	218	72.67	DIST
20	S1916699	Pramod Jaganure	64	19	39	10	132	52	17	39	10	118	250	83.33	DIST
21	S1916719	Rakshita Bindage	60	17	36	9	122	54	18	38	10	120	242	80.67	DIST
22	S1916729	Rohini Badiger	61	19	39	10	129	65	19	39	10	133	262	87.33	DIST
23	S1916736	Sagar Herawade	59	14	36	9	118	63	13	35	9	120	238	79.33	DIST
24	S1916738	Sahana Hanji	67	19	37	10	133	60	18	37	10	125	258	86.00	DIST
25	S1916739	Samiksha Patil	33	15	37	10	95	16	15	35	9	75	170	56.67	FAIL

26	S1916742	Sandesh Zalake	68	20	40	10	138	67	19	40	10	136	274	91.33	DIST
27	S1916763	Shreesh Kulkarni	52	19	40	10	121	70	18	40	10	138	259	86.33	DIST
28	S1916773	Soumya Pattanshetti	59	18	38	9	124	48	17	38	10	113	237	79.00	DIST
29	S1916777	Suchita Havale	75	20	40	10	145	70	19	40	10	139	284	94.67	DIST
30	S1916781	Suhas R.	68	20	40	10	138	67	19	40	10	136	274	91.33	DIST
31	S1916782	Suhasini Kabadagi	69	19	39	9	136	53	18	38	10	119	255	85.00	DIST
32	S1916783	Supriya aChalawadi	59	18	38	10	125	56	17	38	10	121	246	82.00	DIST
33	S1916796	Tejeswini Killedar	54	17	38	10	119	61	18	36	10	125	244	81.33	DIST
34	S1916807	Vasundhara Ghatage	76	20	39	10	145	70	19	40	10	139	284	94.67	DIST
35	S1916811	Vikas Kamble	50	17	37	9	113	63	17	39	9	128	241	80.33	DIST
36	S1916812	Vinayak Benade	77	19	40	10	146	67	19	39	10	135	281	93.67	DIST
37	S1916815	Vinuta Kamble	43	19	38	10	110	49	16	38	10	113	223	74.33	DIST
38	S1919100	Tukaram K. Gaddi	67	18	38	10	133	60	18	39	10	127	260	86.67	DIST

Summary	
Total Candidates	38
Total Appeared	38
Total passed	37
Distinction	36
I class	1
II Class	NIL
Pass Class	NIL
Total failed	1
Absent	NIL
Percentage	97.36

Sl. No.	Reg. No.	Name of the students	TOPPERS												
			Paper I				Total	Paper II				Total	I & II	%	Class
			Th.	In.	Pr.	In.		Th.	In.	Pr.	In.				
8	S1916656	Kaveri Khot	76	20	40	10	146	77	20	40	10	147	293	97.67	DIST
10	S1916660	Keerthi Gadiwaddar	75	20	40	10	145	77	20	40	10	147	292	97.33	DIST
14	S1916670	Manali Patil	75	20	40	10	145	73	20	39	10	142	287	95.67	DIST
29	S1916777	Suchita Havale	75	20	40	10	145	70	19	40	10	139	284	94.67	DIST
34	S1916807	Vasundhara Ghatage	76	20	39	10	145	70	19	40	10	139	284	94.67	DIST
12	S1916666	Laxmi Naik	70	20	39	10	139	74	20	39	10	143	282	94.00	DIST
36	S1916812	Vinayak Benade	77	19	40	10	146	67	19	39	10	135	281	93.67	DIST
11	S1916664	Krutika Kallatti	69	20	39	10	138	71	19	39	10	139	277	92.33	DIST
26	S1916742	Sandesh Zalake	68	20	40	10	138	67	19	40	10	136	274	91.33	DIST
30	S1916781	Suhas R.	68	20	40	10	138	67	19	40	10	136	274	91.33	DIST

RESULT ANALYSIS

We are extremely happy to present the result analysis of the students of VI semester. The students worked very hard according to the instructions given by the faculty members. Students completed the assigned work in the stipulated time and submitted them to the departments which helped them to score more marks. Total candidates registered for the final year BSC is 38. Out of 38 students 36 have scored distinction marks and 1 of them got higher First Class. One of the students Miss. Samiksha Patil have failed in Paper II due to her personal problems. She has promised us to pass the paper in the next chance. The pass percentage is therefore 97.36

Raib
HOD BOTANY
HEAD
DEPARTMENT OF BOTANY



Raib
PRINCIPAL
KLES'S Basawaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201



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**BASAVAPRABHU KORE ARTS, SCIENCE AND COMMERCE
COLLEGE, CHIKODI - 591 201.**

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DEPARTMENT OF ZOOLOGY

Result Analysis of Sixth Semester March/April 2022

Total number of students appeared	:	38
Total number of students passed	:	38
Distinction	:	36
First class	:	02
Result	:	100%



List of Toppers

Register No	Name of the Student	Zoology I		Zoology II		Total	%	Rank
		Theory	Practical	Theory	Practical			
S1916656	KAVERI SUBHAS KHOT	93	50	97	50	290	96.7	I
S1916660	KEERTI MALLESHI GADIWADDAR	94	50	97	49	290	96.7	I
S1916777	SUCHITA SUNIL HAVALE	94	50	93	50	287	95.7	II
S1916666	LAXMI PUNDALIK NAIK	97	48	94	47	286	95.3	III

The sixth semester results of zoology subject is 100%. The department is happy with the students performance, as 36 students out of 38 were with distinction and 02 of them with first class. The above table shows topped list. Maximum students scored more 80 marks in both the papers. The overall performance is appreciated by the faculties of the department.

**HEAD
DEPARTMENT OF ZOOLOGY**

IQAC Coordinator
KLE'S Basavaprabhu Kore
Arts, Science and Commerce College, Arts, Science and Commerce College
Chikodi - 591 201

PRINCIPAL
KLE'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201



**K.L.E. SOCIETY'S
BASAVAPRABHU KORE ARTS, SCIENCE AND COMMERCE
COLLEGE CHIKODI**

Department of Economics

Toppers of B.A IV Semester 2022

SL No	Exam Seat No	Name of the Student	Obtained Marks
01	A2023768	Swarup S. Jugale	89/100
02	A2023769	Swati R. Karpurshetti	88/100
03	A2023719	Ashwini K. Patil	86/100

Toppers of B.A VI Semester 2022

SL No	Exam Seat No	Name of the Student	Obtained Marks
01	A1920850	Rutuja Patil	93+92=185/200
02	A1920812	Diksha Khot	92+91=183/200
03	A1920819	Gopika Mali	91+91=182/200


HOD

Department of Economics




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Arts, Science and Commerce College
CHIKODI - 581 201**



**K.L.E. SOCIETY'S
BASAVAPRABHU KORE ARTS, SCIENCE AND COMMERCE
COLLEGE CHIKODI**

Department of Economics

Toppers of B.Com VI Semester - 2022

Sl. No	Exam Seat No	Name of the Student	Obtained Marks
01	C1923405	Akshata D. Muragali	97/100
02	C1923426	Pooja shinde	96/100
03	C1923410	Apoorva M. Mangaj	94/100

**HOD
Department of Economics**



**PRINCIPAL
KLE'S Basavaprabhu Kore
Arts, Science and Commerce Co
CHIKODI - 591 201**



K.L.E. Society's
BASAVAPRABHU KORE ARTS, SCIENCE AND COMMERCE
COLLEGE, CHIKODI - 591 201.

(Accredited at 'A' with 3.42 CGPA in 4th Cycle)

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e-mail: kles_bkcc@rediffmail.com

Ph: 08338 - 272176

DEPARTMENT OF MATHEMATICS

List of Centum Scorer
(March/April 2023/Sept 2023)

Sl. No.	Name	Class	Amount	Cheque No	Signature
1	Daneshwari Kolalagi	B. Sc Second Sem	1000Rs	573921	D.S.Kolalagi
2	Keerti Kottalagi	B. Sc Fourth Sem	1000Rs	573922	Kottalagi
3	Shruti Korabu	B. Sc Fourth Sem	1000Rs	573923	Shruti
4	Pragati Paranjape	B. Sc Fifth Sem Paper I	1000Rs	573924	Pragati
5	Reshma Varnekar	B. Sc Fifth Sem Paper I	1000Rs	573925	Reshma
6	Shruti Korabu	B. Sc Fifth Sem Paper II	1000Rs	573926	Shruti


HOD

H. O. D.
MATHEMATICS
B. K. College, CHIKODI





PRINCIPAL
KLES'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201

B.com VI Sem Sept/Oct 2022

Sl No	Subject	Total Appeared	Dist	I class	II class	Pass class	Total Pass	Fail	%	Centum Scores
1.	Auditing	104	86	10	04	04	104	-	100%	I) <u>CST</u> :
2.	Income Tax	104	61	17	12	12	102	02	98.08%	1) Akshata Shanwad .
3.	Costing	103	58	24	12	06	100	03	97.09%	2) Pooja Tukare .
4.	IFS	104	71	21	05	04	102	02	98.08%	3) Pralibha. Mayappanavar
5.	CST	104	93	04	04	01	103	01	99.04%	4) Sonali Shirole .
6.	I Economics	103	98	02	04	-	103	-	100%	II) <u>IFS</u> :
7.	Computer App ^l	103	85	12	04	02	103	-	100%	1) Kavari Amale
	Overall	104	76	18	03	-	97	07	93.27%	2) Laxmi Gavade .

Toppers

Aggregate Toppers

- 1) Pooja Tukare 660/700 94.28%
- 1) Pralibha Mayappanavar 660/700 94.28
- 2) Apoorva. Mangaj 655/700 93.57
- 3) Sonali Shirole 654/700 93.43
- 4) Pradnya. Heralage 653/700 93.28
- 5) Maithilee Joshi 651/700 93.00

- 1) Kavari Amale 3524/3700 95.24%
- 2) Apoorva. M. Mangaj 3500/3700 94.59%
- 3) Pooja Tukare 3460/3700 93.51%
- 4) Maithilee M. Joshi 3424/3700 92.54%
- 5) Sonali Shirole 3413/3700 92.24%

III) Costing :
1) Apoorva Mangaj
IV) Income Tax :
1) Pralibha. Mayappanavar



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BASAVAPRABHU KORE ARTS, SCIENCE AND COMMERCE
COLLEGE, CHIKODI – 591 201.**

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Date: 13/01/2023

DEPARTMENT OF MATHEMATICS

IN-HOUSE SEMINARS

Odd Semester:- 2022-23

The department conducted in-house seminar for the first semester students on the different topics of the syllabus of I Semester and students gave seminars on the topics of their choices. All the students participated enthusiastically and presented before the gathering.

Objectives:

- To improve confidence level in students
- To enhance the mathematical skills
- To gain the knowledge about mathematical concepts
- To understand the topic thoroughly

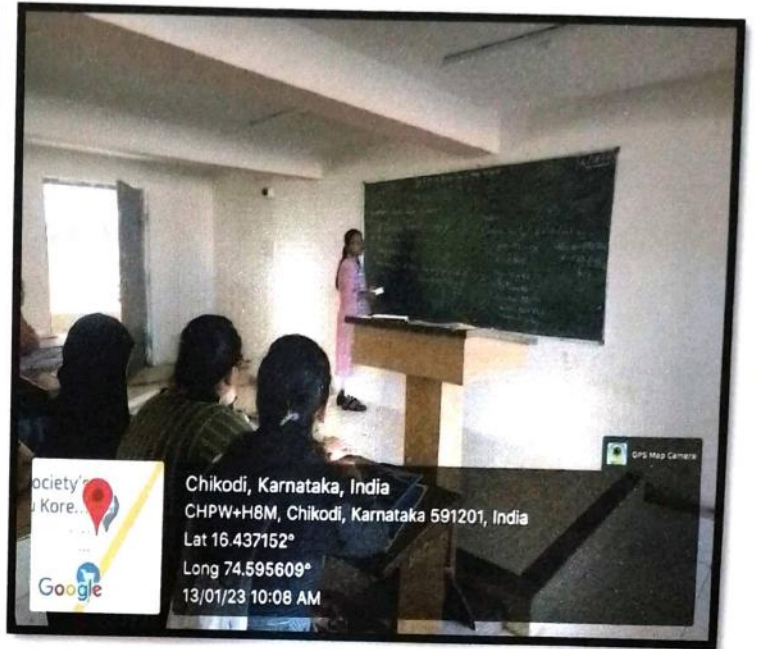
The following students presented their seminar topics

Sl. No.	Name	Class	Topic	Sign
1.	Bramhi S. Patil	I Semester	Differentiability	
2.	Komal C. Gangale		Cauchy's Mean Value Theorem	
3.	Srushti R. Savadi		Lagrange's Mean Value Theorem	

No. of Beneficiaries:-40

Out Come: Students improved their knowledge, understand the concepts thoroughly by solving examples on their related seminar topics and developed their mathematical skills through learning and teaching.


Vibes of In-house Seminar




**Teacher
 In charge**


**H. O. D.
 MATHEMATICS
 B. K. College, CHIKODI**


**IQAC Coordinator
 IQAC Coordinator
 KLE's Basavaprabhu Kore
 Arts, Science and Commerce College,
 Chikodi - 591 201**


**Principal
 PRINCIPAL
 KLE's Basavaprabhu Kore
 Arts, Science and Commerce College
 CHIKODI-591 201**



**K.L.E. SOCIETY'S
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COLLEGE, CHIKODI - 591 201.**

RE-ACCREDITED WITH "A" GRADE BY NAAC BANGALORE

Website: klesbkcollegechikodi.com

☎ : 08338 - 272176

Email - klesbkcc_@rediffmail.com

Seminar ATTENDANCE SHEET

CLASS : B.Sc - Ist Sem

SUB : Mathematics

Date : 13/01/2023

Roll No.	Signature	Roll No.	Signature	Roll No.	Signature	Roll No.	Signature	Roll No.	Signature
1		41		81		121		161	
2		42		82		122		162	
3		43		83		123		163	
4		44		84		124		164	
5		45		85		125		165	
6		46		86		126		166	
7		47		87		127		167	
8		48		88		128		168	
9		49		89		129		169	
10		50		90		130		170	
11		51		91		131		171	
12		52		92		132		172	
13		53		93		133		173	
14		54		94		134		174	
15		55		95		135		175	
16		56	J. C. Kokane	96		136		176	
17		57		97		137		177	
18		58		98		138		178	
19		59		99		139		179	
20		60		100		140		180	
21		61		101		141		181	
22		62		102		142		182	
23		63		103		143		183	
24		64		104		144		184	
25		65		105		145		185	
26		66		106		146		186	
27		67		107		147		187	
28		68	S.S. Jadhav	108		148		188	
29		69		109		149		189	
30		70		110		150		190	
31		71		111		151		191	
32		72		112		152		192	
33		73		113		153		193	
34		74		114		154		194	
35		75		115		155		195	
36		76		116		156		196	
37		77		117		157		197	
38		78		118		158		198	
39		79		119		159		199	
40		80	J.A. champu.	120		160		200	

IQAC Coordinator
KLE's Basavaprabhu Kore
Arts, Science and Commerce College,
Chikodi - 591 201

PRINCIPAL

KLE's Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI-591 201

H. O. D.

MATHEMATICS
K. K. College, CHIKODI.

Signature

Name: Bramhi S. Patil
Topic: Differentiability.



**K.L.E. SOCIETY'S
BASAVAPRABHU KORE ARTS, SCIENCE AND COMMERCE
COLLEGE, CHIKODI - 591 201.**

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☎ : 08338 - 272176

Email - klebkcc_@rediffmail.com

Seminar ATTENDANCE SHEET

CLASS : B.Sc - I Sem

SUB : Mathematics.

Date : 13/01/2023

Roll No.	Signature	Roll No.	Signature	Roll No.	Signature	Roll No.	Signature	Roll No.	Signature
1	<u>Abhinavkorse</u>	41		81		121		161	
2	<u>Ad</u>	42	<u>Chik</u>	82		122		162	
3		43	<u>Chik</u>	83		123		163	
4		44		84		124		164	
5	<u>Abhinavkorse</u>	45	<u>Chik</u>	85		125		165	
6	<u>Chik</u>	46		86		126		166	
7	<u>Chik</u>	47		87		127		167	
8	<u>Chik</u>	48	<u>Chik</u>	88		128		168	
9		49		89		129		169	
10		50		90		130		170	
11		51	<u>Chik</u>	91		131		171	
12	<u>Chik</u>	52	<u>Chik</u>	92		132		172	
13	<u>Chik</u>	53	<u>Chik</u>	93		133		173	
14		54		94		134		174	
15		55		95		135		175	
16		56	<u>J.C. Kulkarni</u>	96		136		176	
17		57		97		137		177	
18	<u>Chik</u>	58	<u>Chik</u>	98		138		178	
19	<u>Chik</u>	59	<u>Chik</u>	99		139		179	
20	<u>Chik</u>	60		100		140		180	
21	<u>Chik</u>	61		101		141		181	
22		62		102		142		182	
23		63	<u>Chik</u>	103		143		183	
24		64	<u>Chik</u>	104		144		184	
25		65	<u>Chik</u>	105		145		185	
26	<u>Chik</u>	66		106		146		186	
27	<u>Chik</u>	67	<u>Chik</u>	107		147		187	
28		68	<u>S.S. Jadhav</u>	108		148		188	
29	<u>Chik</u>	69	<u>SK</u>	109		149		189	
30		70		110		150		190	
31		71	<u>Vumbal</u>	111	IQAC Coordinator			191	PRINCIPAL
32	<u>Chik</u>	72		112	KLE's Basavaprabhu Kore			192	KLE's Basavaprabhu Kore
33	<u>S.K. Madras</u>	73	<u>Chik</u>	113	Arts, Science and Commerce College			193	Arts, Science and Commerce College
34		74	<u>Rskallup</u>	114	Chikodi - 591 201			194	CHIKODI 591 201
35		75		115				195	
36		76		116				196	
37		77	<u>Chik</u>	117				197	
38	<u>Chik</u>	78		118				198	
39	<u>Chik</u>	79		119				199	
40	<u>Chik</u>	80	<u>J.A. Champa</u>	120	H.O.D.			200	

Name: Somali C. Gargale

Topic: Cauchy's Mean Value Theorem.

B. K. College, CHIKODI

Signature



K.L.E. SOCIETY'S
BASAVAPRABHU KORE ARTS, SCIENCE AND COMMERCE
COLLEGE, CHIKODI - 591 201.

RE-ACCREDITED WITH "A" GRADE BY NAAC BANGALORE
Website: klesbkclegechikodi.com Phone: 08338 - 272176 Email - klebkcce@rediffmail.com

Seminar ATTENDANCE SHEET

SUB: Mathematics

CLASS: B.3c-I Sem

Date: 13/01/2023

Roll No.	Signature	Roll No.	Signature	Roll No.	Signature	Roll No.	Signature	Roll No.	Signature
1		41		81		121		161	
2		42		82		122		162	
3		43		83		123		163	
4		44		84		124		164	
5		45		85		125		165	
6		46		86		126		166	
7		47		87		127		167	
8		48		88		128		168	
9		49		89		129		169	
10		50		90		130		170	
11		51		91		131		171	
12		52		92		132		172	
13		53		93		133		173	
14		54		94		134		174	
15		55		95		135		175	
16		56		96		136		176	
17		57	J. C. Kokane.	97		137		177	
18		58		98		138		178	
19		59		99		139		179	
20		60		100		140		180	
21		61		101		141		181	
22		62		102		142		182	
23		63		103		143		183	
24		64		104		144		184	
25		65		105		145		185	
26		66		106		146		186	
27		67		107		147		187	
28		68	S.S. Jadhav	108		148		188	
29		69		109		149		189	
30		70		110		150		190	
31		71		111		151		191	
32		72		112		152		192	
33		73		113		153		193	
34		74		114		154		194	
35		75		115		155		195	
36		76		116		156		196	
37		77		117		157		197	
38		78		118		158		198	
39		79		119		159		199	
40		80	J. A. Champa.	120		160		200	

IQAC Coordinator
KLE's Basavaprabhu Kore
Arts, Science and Commerce College,
Chikodi - 591 201

H. O. D.

PRINCIPAL
KLE's Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI-591 201

Name: Srustoti D. Sevadi
Topic: Lagrange's Mean Value Theorem.

B. K. College, CHIKODI
Signature

**Study on faunal diversity of K.L.E'S Basavaprabhu Kore College
Campus, Chikodi, Karnataka.**

By

**Srilakshmi Kulkarni, Shambhavi Vishwakarma, Amruta B Patil, Archana
Shiragave**

**Project Submitted to
DEPARTMENT OF ZOOLOGY**



**K.L.E SOCIETY'S BASAVAPRABHU KORE ARTS, SCIENCE AND
COMMERCE COLLEGE, CHIKKODI-591201**

(Accredited at 'A+' grade by NAAC with CGPA of 3.42 in the Fourth cycle)

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Under the guidance of

Dr. Sridevi. I. Puranik M. Sc., KSET., Ph.D.

Assistant Professor

Head, Department of Zoology

**K.L.E'S Basavaprabhu Kore Arts, Science and Commerce, College
Chikodi-591201**





2021-22



**K.L.E SOCIETY'S BASAVAPRABHU KORE ARTS, SCIENCE AND
COMMERCE COLLEGE, CHIKKODI-591201**

DECLARATION BY THE CANDIDATES

We hereby declare that this project/Dissertation entitled "Study on faunal diversity of K.L.E'S Basavaprabhu Kore College Campus, Chikodi, Karnataka" is a bonafide and genuine research work carried out under the guidance of Dr. Sridevi. I. Puranik M. Sc., KSET, Ph.D. Assistant Professor Head, Department of Zoology K.L.E Society's Basavaprabhu Kore Arts, Science and Commerce, College Chikodi-59120.

1. Srilakshmi Kulkarni : 018360 
2. Shambhavi Vishwakarma : S2018329 
3. Amruta B Patil : S2018214 
4. Archana Shiragave : S2018219 



Date: 7/9/23

Place: Chikodi

Dr. Sridevi. I. Puranik M. Sc., KSET, Ph.D.

Dr. S. I. PURANIK
M.Sc., KSET, Ph.D.
Head Department of Zoology
K.L.E. Society's Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591201



**K.L.E. SOCIETY'S BASAVAPRABHU KORE ARTS, SCIENCE AND
COMMERCE COLLEGE, CHIKKODI-591201**

CERTIFICATE

This is to certify that the project entitled “Study on faunal diversity of B.K College Campus, Chikodi, Karnataka” is a bonafide and genuine research work carried out by Srilakshmi Kulkarni, Shambhavi Vishwakarma, Amruta B Patil and Archana Shiragave from dept. of Zoology.

- | | | | |
|--------------------------|---|----------|--|
| 1. Srilakshmi Kulkarni | : | S2018360 | |
| 2. Shambhavi Vishwakarma | : | S2018329 | |
| 3. Amruta B Patil | : | S2018214 | |
| 4. Archana Shiragave | : | S2018219 | |

Guide

Date: 12/10/23

Place: Chikodi

IQAC Coordinator
IQAC Coordinator

KLE's Basavaprabhu Kore
Arts, Science and Commerce College
Chikodi - 591 201

HOD

**HEAD
DEPARTMENT OF ZOOLOGY**

Principal
PRINCIPAL

KLE'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201

1. INTRODUCTION

Biodiversity is the term referred in its long version as biological diversity by Lovejoy (1980). The biological diversity refers to describes commonly the number of species present in environment. The word biodiversity contributes to the region and specifically refers to the variety within and among living organisms, groups of living organisms, biotic communities, and biotic processes, whether naturally occurring or modified by humans. Biodiversity can be measured in terms of genetic diversity, species diversity, ecosystem diversity, community diversity, and taxonomic diversity. The measurement components include identification, classification and number of types of individual species present in the ecosystem. It also includes assemblages of species, biotic communities, and biotic processes, and the amount (e.g., abundance, biomass, cover, and rate) and structure of each [Scott JM *et al.*, 1993]

Karnataka, one of the Southern states of India has 3.83 Million hc of recorded forest of area which is around 20 percent of its geographical area. Karnataka is endowed with most magnificent forests in the country ranging from majestic evergreen forests of the Western Ghats to the scrub jungles of the plains. The Western Ghats of Karnataka are one of the 25 global priority hotspots for conservation and one of the two on the Indian subcontinent [Ninan KN *et al.*, 2005]. Karnataka forest is endowed with rich wildlife, harbors 25% of the elephant population of India, 10% of the Tiger population. The state has 5 National parks and 21 sanctuaries comprising about 17.3% of total forest area as protected area for wildlife and biodiversity. The state ranks 4th among all the state and union territories in respect of area under tree cover.

Chikodi is located at 16.43°N 74.6°E. It has an average elevation of 683 meters (2240 feet). The town has an area of 18.29 km², and is situated amidst hills. The topography within 2 kilometers of Chikodi contains significant variations in elevation as it is surrounded by range of hills, with a maximum elevation change of 169 meters and an average elevation above sea level of 657 meters. Chikodi has a tropical savanna climate. The wet season is pleasant, windy, and overcast while the dry season is hot and partly cloudy. The dry season lasts for 2.5 months, from 9 March to 23 May, with an average daily high temperature above 34 °C. Over the course of the year, the temperature typically varies from 14 °C to 37 °C and is rarely below 13 °C or above 39 °C. This demographic condition support good diversity of flora and fauna.

Therefore, the present study aims to assess and review the faunal diversity of the college campus.

2. AIM AND OBJECTIVES

AIM

To assess and review the faunal diversity in and around the of B. K. College campus

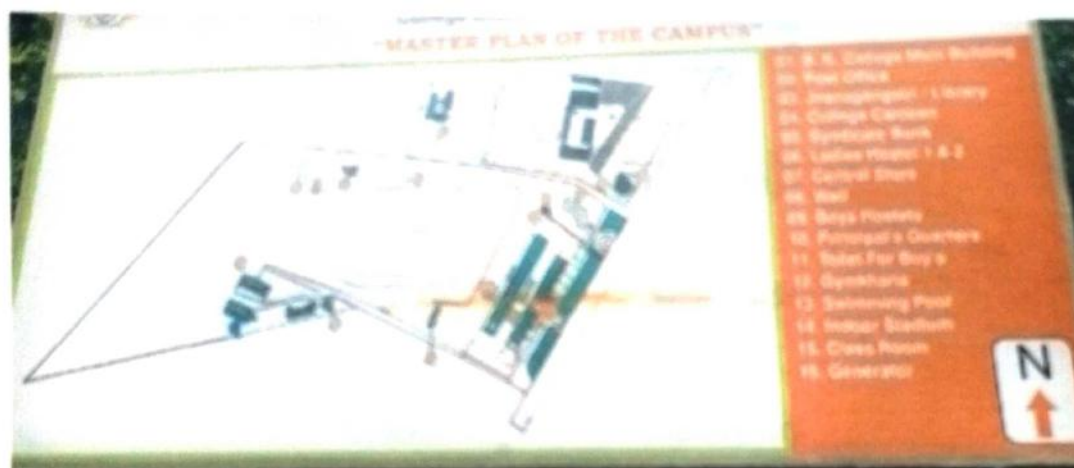
OBJETIVES

- ✓ To know the faunal diversity of the college
- ✓ To classify and identify the fauna of the campus into its respective taxa on the basis of their characteristics.
- ✓ To undertake the faunal survey of different ecosystems to study the wonder of biodiversity
- ✓ To ignite the sense of bio-ethical spirit and to justify the protection of biodiversity

4. METHODOLOGY

Study Area

K.L.E Society's Basavaprabhu Kore Arts, Science and Commerce College, Chikodi is a centre founded in the year 1969. The campus is spread over an area of 23.12 acres. The lush green flora of the campus holds varieties of fauna and floral diversity. The campus area covers office premises, main building, library, botanical garden, gymkhana, playground, canteen, post office, well, Principal quarters, swimming pool and hostels.



Methodology

The fauna in the campus is critically surveyed in different localities of the campus from November 2022 to September 2023. The 23.12 acres campus was surveyed for presence of different varieties of fauna ranging from insects, amphibians, birds, reptiles and mammals. Photographs of the same were clicked and documented in department of zoology. Taxonomic identification was done using standard field guides.

5. DIVERSITY OF FAUNA

Acraea terpsicore (Tawny coster)



Kingdom	:	Animalia
Phylum	:	Arthropoda
Class	:	Insecta
Order	:	Lepidoptera
Family	:	Nymphalidae
Genus	:	<i>Acraea</i>
Species	:	<i>A. terpsicore</i>

It is found in India, Sri Lanka, Maldives to Myanmar, Thailand, Laos, Cambodia, Vietnam, Bangladesh, Singapore and Australia [Braby MF *et al.*, 2014]. It is a small, 53-64 mm, leathery-winged butterfly common in grassland and scrub habitats. It belongs to the Nymphalidae or brush-footed butterfly family. It has a weak fluttery flight. It is avoided by most insect predators. This species and the yellow coster (*Acraea issoria*) are the only two Indian representatives of the predominantly African tribe Acraeini.

This species does not fly high, but seems to keep within 3m of the ground and tends to rest on vegetation in the regions of a meter off the ground. These species can be seen in abundance wherever its larval food plant (Passiflora species) is found. The adult tends to avoid dense undergrowth and shady areas, instead keeping to open spaces in all types of vegetation

Amata passalis (Sandalwood defoliator)



Kingdom	:	Animalia
Phylum	:	Arthropoda
Class	:	Insecta
Order	:	Lepidoptera
Family	:	Eribidae
Genus	:	Amata
Species	:	<i>A.passalis</i>

Amata passalis, the sandalwood defoliator [Gopinath K 1992], is a moth of the family Eribidae first described by Johan Christian Fabricius in 1781. It is found in Sri Lanka and India. The average life cycle of the species in captivity is 62 days.

After mating, the adult female lays 305 eggs in a lifespan of 3.87 days. It is known to breed all year around and passes through 6-11 generations a year. There are eight larval instars. First and last instar larvae are about 1.97mm and 29.29mm in length, respectively. Adults usually emerge within 1 to 2 hours of sunrise. After a day, they are ready for mating.

It is known mainly as a defoliator of sandalwood in India. It is also recorded on various alternate food plants, mainly cowpeas, various other pulses, and ornamental plants. The larval stage of *Apanteles nepitae* can be used as a parasite to control the moth.

Appias lyncida (Chocolate albatross)



Kingdom	:	Animalia
Phylum	:	Arthropoda
Class	:	Insecta
Order	:	Lepidoptera
Family	:	Pieridae
Genus	:	<i>Appias</i>
Species	:	<i>A. lyncida</i>

Appiaslyncida, the chocolate albatross, is a butterfly of the family Pieridae, which is found in south and southeast Asia. It is found in India, China, Sri Lanka, Myanmar, Malaysia, Indonesia, Philippines, Thailand, Laos, Indochina, Taiwan, Hainan, and possibly South China. In South India, it is to be found along the foot of the Western Ghats. It is found throughout the year in the Nilgiris where it is locally common. In the northern parts of peninsular India. It extends into Orissa and north up to Lucknow.

It has the wing size of 55 to 70 mm. The male is white above with chocolate brown or black margins, and, bright lemon yellow below with chocolate-coloured markings. The female is white and densely clouded with dark brown. The butterfly shows seasonal dimorphism and is very variable.

It is a forest butterfly and prefers rainy highlands, up to a level of 3000 feet. Flying strongly and swiftly close to the ground, the albatross is frequently found in jungle clearings and along stream banks. The males are often found circling around trees and bushes. The chocolate albatross often mudpuddles, sometimes in large numbers. The butterfly occasionally visits flowers and has been recorded to visit Verbena flowers in Kodagu.

Castalius rosimon (Common Pierrot)



Kingdom	:	Animalia
Phylum	:	Arthropoda
Class	:	Insecta
Order	:	Lepidoptera
Family	:	Lycaenidae
Genus	:	<i>Castalius</i>
Species	:	<i>C. rosimon</i>

The species is found in Sri Lanka, India, Myanmar, extending into the Malayan sub region. In the Indonesian archipelago the butterfly occurs in North-Eastern Sumatra, Kalimantan, Eastern Java, Bali, Bangka, and Timor. This butterfly is also found in the Andaman Islands and the Southern Nicobar Islands. Its outer margins are marked in black on the upper side with a row of white lines on the hindwing. In Male forewing has the costa, apex and termen edged with black, the edging must broader on apex and termen; base outwards for a short distance more or less densely overlaid, with metallic blue scales which cover and make indistinct a large basal outwardly clavate (club shaped) black spot; a transverse black oval spot on the discocellulars touching the black edging on the costs; an oblique irregular line of four quadrate black spots beyond, the upper coalesced with the black on the costal border, the next spot below shifted outwards out of line, touching, as does also the lowest spot, the terminal black edging; posterior to this quadrate black in the apical half of interspace, and placed obliquely outwards from 1b coalescent with the terminal black border, another similar spot in interspace. Female is similar to the male but with the black markings on the upper and undersides broader. Individuals of this species have been reported to exhibit seasonal colour variations and melanic aberrations that show a similar pigmentation pattern.

6. RESULTS AND DISCUSSION

During our studies we documented, 64 species of animals belonging to 50 families and 24 order. The most dominant orders recorded were Lepidoptera with 16 species, Passeriformes with 12 species and Hymenoptera with 5 species. The maximum species of invertebrates were observed round the year, Aves were observed during early monsoon and winter.

We observed a total of 64 species, out of which 42 species (65.62%) were common, 6 species (9.37%) were uncommon, 10 species (15.62%) were occasional and 6 species (9.37%) were rarely sighted.

The campus is rich in floral diversity which maintains the ambient environment for the diversity of fauna. The commonly observed fauna amongst the invertebrates in the campus were earth worms, yellow spotted millepede, common Asian millipede during monsoon. Air breathing land snails, bladder snails were common amongst molluscans. We sighted varieties of butterflies wandering in the campus including, tawny coster, monarch butterfly, danaid eggfly, common zebra blue, pale grass blue, red pierrot, common grass yellow, insects like slender burrowing grasshopper, Asian tiger mosquito and bumble bees. We observed honey combs adhered to the parapet shelf of the college building. The most common species of honey observed was dwarf honey bee (*Apis florea*). We also found the potter wasp building their nest on the walls. Amongst vertebrates, Asian common toad, Skittering frogs, oriental garden lizard and Indian palm Squirrel were observed as most common species

Few important rare species sighted in the campus were chocolate albatross, *Ophiocoronata*, convolvulus hawk-moth, Indian palm bob, Bengal Monitor lizard and *Lonomiasps.*, this is because of adequate water resources and moist environment as compared to Chikodi city is available within the college premises.

The playground and grassland ecosystem also holds good species like, giant crab spider, red house spider, rusty darner, scarlet dragon fly, grey bird grasshopper, stick insects.

Within the premises of college and in botanical garden some uncommon species were also sighted like sandalwood defoliator, common pierrot, common gull, green stink bug, dark fishing spider, scarab beetle.

We observed the good diversity of Avian fauna. The grass, trees, shrubs and fruiting plants provides ideal environment for common bird diversity including common myna, Oriental magpie-robin, Indian Robin, Asian Koel, Asian green bee eater, Kingfisher, Indian ringneck parrot, Red vented Bulbul, Red- Whiskered bulbul The occasional visitors were western yellow wagtail, intermediate egrets, black drongo and greater coucal. We also sighted the nests of few birds. Good number of pigeons were observed near hostels.

Amongst mammals, often we sighted the Southern plains grey langurs during summer specially in search of water and food which is provided in the tank, well and in pots in different places of the campus.

7. CONCLUSION

We observed good diversity of fauna in the campus. Total of 64 species of animals belonging to 50 families and 24 order were observed. This is the preliminary study which documented the good number of species of the campus and laid a foundation for vast studies in the future. Further investigation of faunal diversity is required to study the new species, population and conservation methods to protect the fauna of KLE'S Basavaprabhu Kore College campus.

8. TABLES

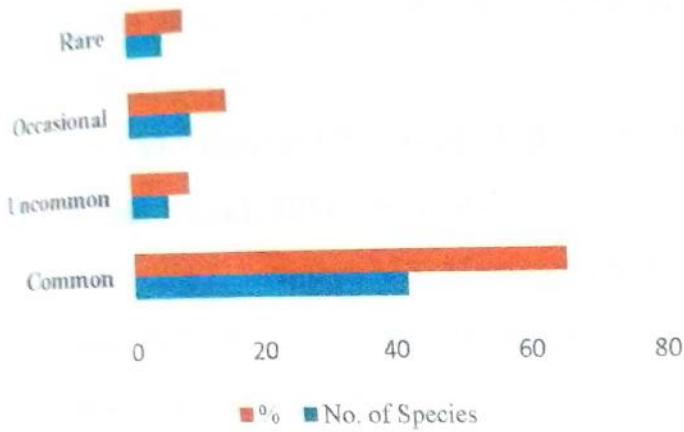
Table 1. List of Invertebrate Species:

Sl. No	Scientific Name	Family	Common Name	Status
Phylum Annelida				
1	<i>Pheretima posthuman</i>	Megascolecidae	Earth worm	C
Phylum Mollusca				
2	<i>Allopeasclavulinum</i>	Achantinidea	Air breathing land snail	C
3	<i>Helicinaorbiculata</i>	Helicinidae	Land snail	C
4	<i>Physella acuta</i>	Physidae	Bladder snail	C
Phylum Arthropoda				
5	<i>Acraea terpsicore</i>	Nymphalidae	Tawny coster	C
6	<i>Amata passalis</i>	Eribidae	Sandalwood defoliator	UC
7	<i>Appiaslyncida</i>	Pieridae	chocolate albatross	R
8	<i>Castaliusrosimon</i>	Lycaenidae	Common Pierrot	UC
9	<i>Ceporanerissa</i>	Pieridae	Common gull	UC
10	<i>Danaus plexippus</i>	Nymphalidae	Monarch butterfly	C
11	<i>Euremahecabe</i>	Pieridae	common grass yellow	C
12	<i>Hypolimnasmisippus</i>	Nymphalidae	Danaid eggfly	C
13	<i>Leptotespirithous</i>	Lycaenidae	Common zebra blue	C
14	<i>Lonomiasps.</i>	Saturniidae	giant silkworm moth	R
15	<i>Ophiusacoronata</i>	Erebidea	-	R
16	<i>Pseudozizeerimaha</i>	Lycaenidae	Pale grass blue	C
17	<i>Talicadanyseus</i>	Lycaenidae	Red Pierrot	C
18	<i>Acrotyluspatruelis</i>	Acrididae	Slender burrowing grasshopper	C
19	<i>Aedes albopictus</i>	Culicidae	Asian tiger mosquito	C
20	<i>Agriuas convolvuli</i>	Sphingidae	convolvulus hawk-moth	R
21	<i>Anaciaeschnajaspidea</i>	Aeshnidae	Rusty darner	C
22	<i>Apisflore</i>	Apidae	Dwarf honey bee	C
23	<i>Bombus latreille</i>	Apidae	Bumble bee	C
24	<i>Chinaviahilaris</i>	Pentatomidae	Green stink bug	UC
25	<i>Crocothemiserythrae</i>	Libellulidae	scarlet dragonfly	C
26	<i>Delta pyriforme</i>	Vespidae	Potter wasp	O
27	<i>Dolomedestenebrosus</i>	Pisauridae	Dark fishing spider	UC
28	<i>Harpaphehydeniana</i>	Xystodesmidae	Yellow-spotted	C

9. GRAPHS

1. Status of Species in College Campus

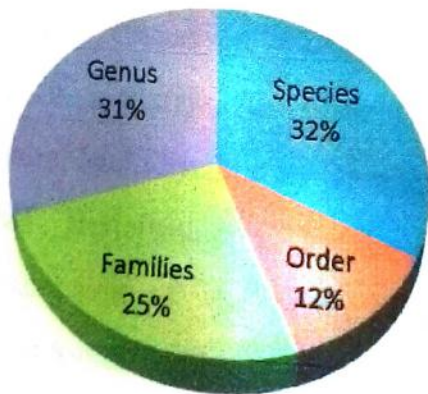
STATUS



Status	No. of Species	%
Common	42	65.62
Uncommon	6	9.37
Occasional	10	15.62
Rare	6	9.37

2. Species distribution of fauna

Species Distribution



Distribution	No. of fauna
Species	64
Order	24
Families	50
Genus	62

B. Sc II semester

Sl.No.	Roll No.	Name of the student	Signature
1	138	Laxmi, N. payappagol.	L. N. payappagol.
2	66	Namrata . S. Chimmal	N
3	90	Roopa . R. Desai	Roopa Desai
4	135	Yallakke. N. Khot	Y Khot
5	73	Poonam . B. Malage	P Malage
6	51	Madhira . M. Mulla.	Mulla
7	89	Hemalaxmi . M. Siddiqui	H
8	41	Kavita, L, Mehehamwar	K
9	97	Samruddhi . V. Gidannee	Sam VG
10	92	Rutuja . R. chonchannavee	Rutuja
11	110	Sneha H. Karbar	S Karbar
12	65	Nagesh . A. Kragawade	N
13	55	Mahantesh . G. Devanagol	M
14	72	Pawar Ritesh R	R
15	28	Bhagyoday . B. Kiradannavee	B
16	25	Arpita . R. Naik	A Naik
17	87	Rohan . S. Komble	R Komble
18	132	Vishal . A. vadavade.	V
19	30	Bhimarav A. Sajane	B
20	09	Aditya , A , Nilaijyoti	A

Presented by

Roll No.	Name	Topic
25	Arpita R Naik	Essential & nonessential amino acid
9	Aditya Nilaijyoti	Digestive system
28	Bhagyoday Kiradannavee	digestion
30	Bhimarav A Sajane	Accessory digestive glands

10:30 to 11 am


5/8/22

B.Sc II Am

Sl. No.	Roll No.	Name of the Student	Signature
1	90	Roopa. R. Desai	<u>Roopa</u>
2	110	Sneha. H. Kambor	<u>S.H.Kambor</u>
3	41	Kavita. L. Meechannavar	<u>Kavita</u>
4	92	Ruteya. R. chonchannavar	<u>Ruteya</u>
5	51	Madhira. M. Mulla	<u>Mulla</u>
6	73	poonam. B. Malage	<u>Malage</u>
7	25	Arpita. R. Naik	<u>Arpita</u>
8	97	Samruddhi. V. Gidamur	<u>Sam V G</u>
9	65	Nagesh. A. Kraganade	<u>Nagesh</u>
10	55	Mahantesh. G. Devanagol	<u>Mahantesh</u>
11	30	Bhimarav A. Sajane	<u>Bhimarav</u>
12	132	Vishal. A. Vadavade	<u>Vishal</u>
13	87	Rohan. S. Kamble	<u>Rohan</u>
14	28	Bhagyoday. B. Kivadannavar	<u>Bhagyoday</u>
15	72	Pawar Ritesh R	<u>Ritesh</u>
16	39	Heerakousal. M. Siddiqui	<u>Heerakousal</u>
17)	23	Ankita. G. Vaddar	<u>Ankita</u>

Presented by

1. Heerakousal. M. Siddiqui: Gluconeogenesis
2. Madhira. M. Mulla: Glycogenolysis
3. Kavita. L. Meechannavar: Components of blood
4. Mahantesh. G. Devanagol: Parts of GI tract
5. Nagesh Kraganade: Structure of Kidney


A. S. S. Puranik

B.Sc II Sem

No	Roll No.	Name of the student	Signature
01	135	Yallakha. N. Khot	<u>Yallakha</u>
02	90	Roopa. R. Desai	<u>R Desai</u>
03	41	Kavita. H. Mechchannavar	<u>Kavita</u>
04	92	Rutuja. Chonchannavar	<u>Rutuja</u>
05	138	Laxmi. V. Payappagal	<u>L.V Payappagal</u>
06	66	Namrata. S. Chimmal	<u>N</u>
07	73	Poonam. B. Malage	<u>P Malage</u>
08	51	Madhya. M. Mulla	<u>Mulla</u>
09	25	Aprita. R. Mark	<u>A Mark</u>
10	39	Hanakoosar. M. Siddiqui	<u>H</u>
11	35	Deepa. B. Managanvi	<u>D.B. Managanvi</u>
12	97	Samruddhi. V. Gudamur	<u>Su VG</u>
13	110	Sneha. H. Kambar	<u>S.H Kambar</u>
14	130	Veena. Latman. Musayyappi	<u>Veena</u>
15	55	Mahantesh. G. Devanagol	<u>M</u>
16	30	Bhimarav. A. Sajane	<u>B</u>
17	72	Pawaz. Ritesh R.	<u>Ritesh</u>
18	65	Nagesh. A. Kagawade	<u>Nagesh</u>
19	132	Vishal. A. Vadavade	<u>V</u>

05/08/2023

RAJESWARI	
DATE: / /	PAGE

B.Sc IV sem (DSC)

Sl.No	R.No	Name of Student	Signature
01.	135	Yallakka N. Khot	<u>YKhot</u>
02	90	Roopa R. Desai.	<u>RDesai</u>
03	92	Rutuja Chonchannavar	<u>Rutuja</u>
04	25	Arpita R. Naik	<u>ArNaik</u>
05	73	Poonam B. Malage	<u>PBmalage</u>
06	110	Sneha H. Kambar	<u>SHKambar</u>
07	51	Madha M. Mulla.	<u>Mulla</u>
08	130	Veena L. Musaguppi	<u>Veena</u>
07	138	Laxmi N. Payappagol	<u>L.N.P.</u>
08	30	Bhimaran A. Sajane	<u>B.Sajane</u>
09	87	Rohan S. Kamble	<u>RKamble</u>
10	09	Aditya A. Nilajyoti	<u>Aditya</u>
11	65	Nagesh A. Kogavade	<u>NKogavade</u>
12	55	Mahantesh G. Devanagol	<u>MDevanagol</u>

Seminar Topics.

- 1) Arpita R. Naik. → First and second-line of defence.
- 2) Deepa B. Managanvi → Secondary lymphoid organs.
- 3) Roopa Desai → Mean, Median, Mode
- 4) Rutuja R. Chonchannavar → frequency distribution.
- 5) Veena Musaguppi → Data summarising
- 6) Yallakka N. Khot → MHC I and MHC II molecules
- 7) Mahantesh Devanagol → Micro-injection.

Kulkarni.

(V.A Kulkarni)

Sl. No.	Roll No.	Name of the student	Signature
1	14	Jumasha Makandar	
2	36	Santosh R. Waghmare	
3	76	Soundarya T. Lokare	S.T. Lokare.
4	34	Samiya S. Jamadar	
5	11	Diya J. Manjrekar.	Diya Manjrekar
6	17	Laxmi B. Sanadi	
7	47	Srushti A. Meghannavar	
8	50	Supriya N. Bane	
9	10	Devaki S. Mugalakhod	
10	24	Nikhil J. Devamane	
11	54	Prashant Bani	
12	04	Anand S. Kondaguli	

- Devaki S. Mugalakhod - Gluconeogenesis.
 - Diya J. Manjrekar - Glycolysis
 - Jumasha Makandar - Absorption of food.
 - Laxmi Sanadi - Absorption of food
 - Samiya S. Jamadar - Mechanical & chemical digestion.
 - Santosh Waghmare - Glycogenesis
 - Srushti A. Meghannavar - Carbohydrates
 - Supriya Bane - Digestion & Absorption in human.
 - Soundarya T. Lokare - Glycogenesis
 - Anand Kondaguli - Schistosoma haematobium
 - Nikhil Devamane - Parasitology
 - Prashant Bani - Alkaloids (umbelliferoids)
- (Dr. S.S. Anant)
- Incharge Staff



K.L.E. SOCIETY'S EST-1969
**BASAVAPRABHU KORE ARTS, SCIENCE AND
COMMERCE
COLLEGE, CHIKODI – 591 201.**

Accredited at **A⁺** Grade With **3.42 CGPA** in 4th Cycle

Website: klesbkcollegechikodi.edu.in ☎ : 08338 – 272176 Email: kles_bkcc@rediffmail.com

Date: 09/01/2023

Department of Zoology

In-house Seminars 2022-23

The students of B. Sc III Semester (OEC) are informed to present their seminars according to the schedule given below. You are informed to come prepared for the topics and submit the written script to the Department on the same day.

Roll No.	Name of the Student	Topic	Date	Time
1. 18	Akshata M. Kore	Pituitary : Structure and functions	17.01.23	8.30 to 9.30 AM
2. 40	Kavita G. Jadhav	Prostaglandins	17.01.23	8.30 to 9.30 AM
3. 56	Meenakshi.G. Naik	Diabetes mellitus.	17.01.23	8.30 to 9.30 AM
4. 77	Pratik A. Magadum	Diabetes mellitus.	17.01.23	8.30 to 9.30 AM
5. 84	Rajashree. M. Tirodkar	Different types of Rhythms	24.01.23	8.30 to 9.30 AM
6. 99	Sangeeta. K. Bombalwade	Structure and functions of Pineal gland	24.01.23	8.30 to 9.30 AM
7. 115	Sourabh. A. Bendale	Pancreatic islets - histological structure	24.01.23	8.30 to 9.30 AM
8. 127	Uttam. S. Varute	Histological structure of thyroid gland	24.01.23	8.30 to 9.30 AM

V.A. Kulkarni

Shri. V.A. Kulkarni
Staff In-charge

HEAD
DEPARTMENT OF ZOOLOGY



K.L.E. SOCIETY'S EST-1969
**BASAVAPRABHU KORE ARTS, SCIENCE AND
COMMERCE**
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Date: 06/01/2023

Department of Zoology
Home Assignments 2022-23
Class: B. Sc III Semester

All the students of B. Sc III Semester (OEC) are hereby informed to submit your Home Assignments on or before 15/01/2023.

Sl. No.	Roll No.	Name of the Student	Topic
1.	18	Akshata M. Kore	Hypothalamus
2.	40	Kavita G. Jadhav	Hyperinsulinism and diabetes mellitus
3.	56	Meenakshi.G. Naik	Adrenal cortex and medulla
4.	77	Pratik A. Magadum	Thyroid and parathyroid: Histological structure of the glands
5.	84	Rajashree. M. Tirodkar	Prostaglandins
6.	99	Sangeeta. K. Bombalwade	Types of Rhythms
7.	115	Sourabh. A. Bendale	Pineal gland: Structure and functions of Pineal gland.
8.	127	Uttam. S. Varute	Pituitary gland and its disorders

Smt. G. A. Dhekale
Staff In-charge



HEAD
DEPARTMENT OF ZOOLOGY

Bsc Ist Sem DEL project report

KLE SOCIETY'S
BASAVPRABHU KORE SCIENCE,
ARTS AND COMMERCE COLLEGE,
CHIKKODI

(Accredited at 'A+' by NAAC with 3.42 CGPA)

Website: www.klesbkcollegechikodi.edu.in e-mail: kles_bkcc@rediffmail.com Ph: 08338-272176

Department of Physics

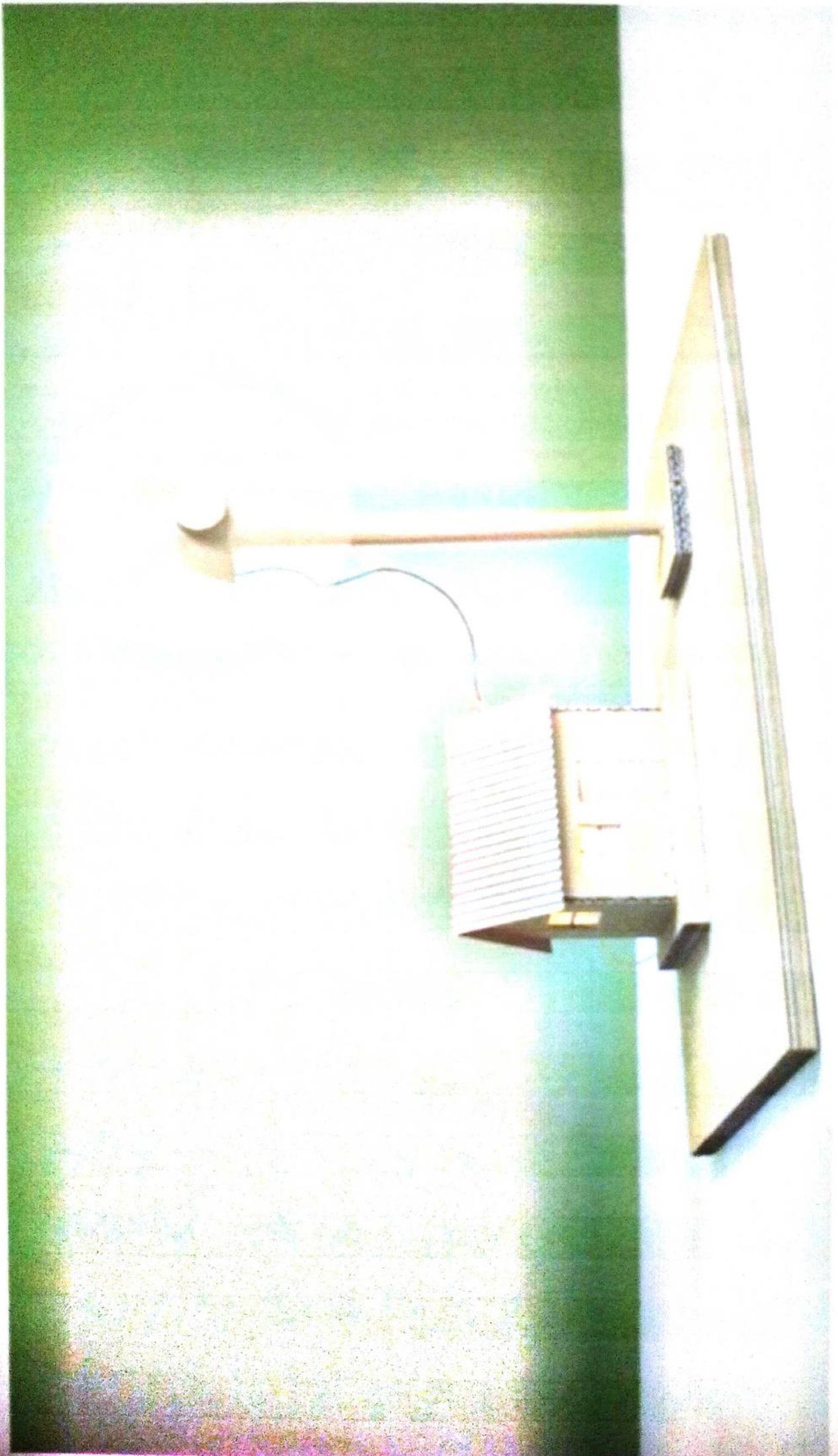
Project Title: Converting electrical energy into wind energy

Guided By:

Havareddy Sir

Name of the students participated:

- ❖ Sneha Koli
- ❖ Ranjita Koli
- ❖ Hafsa Khazi
- ❖ Zaveriya Sayyad
- ❖ Amruta Chavhan
- ❖ Vidya Kumbar
- ❖ Soujanya More
- ❖ Mahantesh Dhang
- ❖ Amar Bilige
- ❖ Chetan Ihole



Electrical energy into wind energy

Introduction:

A wind turbine entirely relies on wind energy to create electric energy. This makes it an environmental-friendly method of producing power. In modern wind turbines, wind rotates the rotor blades, which convert kinetic energy into rotational energy. This rotational energy is transferred by a shaft which to the generator, thereby producing electrical energy.

Aim:

Converting electrical energy into wind energy. Wind turbines work on a simple principle: instead of using electricity to make wind—like a fan—wind turbines use wind to make electricity. Wind turns the propeller-like blades of a turbine around a rotor, which spins a generator, which creates electricity.

Apparatus:

- ❖ **DC MOTOR**
- ❖ **A LARGE PIECE OF CARDBOARD**
- ❖ **PLYWOOD BOARD**
- ❖ **LOW RESISTANCE LED LIGHT**
- ❖ **A PAIR OF SCISSORS**

❖ **POSITIVE & NEGATIVE WIRES**

❖ **HOT GLUE GUN**

❖ **TAPE, AND**

❖ **EXTERNAL SOURCE OF WIND**

Procedure:

Step 1: Building the rotor

Step 2: Building the blades

Step 3: Building the tower

Step 4: Mounting the motor

Step 5: Building the house

Step 6: Connecting the light

Step 7: Get the turbine turning

Step #1: Building the rotor

Grab the large piece of cardboard and cut out 4 circle pieces, around 3cm diameter each. Stick all the circles together with the help of glue to make one thick circle.

Now take a thin paper and wrap (glue) it around the thick circle you have obtained above, ensuring it properly fits the circle, lengthwise and widthwise.

Step #2: building the blades

Cut up to 4 rectangular pieces from the large cardboard, each measuring 8cm x 2.5cm. cut out one edge of pieces so that they form a round shape to enable you to easily glue them to the rotor you have just made above.

You'll also need to slightly bend all the 4 pieces along the middle so that they appear somewhat rounded, just like the blades on a typical home wind turbine kit.

Glue all the 4 blades to your rotor and leave them to dry out.

Step #3: Building the tower

As the blades take time to dry, you can focus on making the tower which will elevate the rotor up.

Go back to your large piece of cardboard and cut out a thin portion of it, measuring 30cm x 12cm.

Wrap this cutout around a pen to make a perfect hollow pole. Glue the paper end and pull out the pen so that you're left with the tower.

Step #4: Mounting the motor

Grab your DC motor and wrap it with a piece of cardboard paper which properly fits its length. As you do so, ensure the pointy part of the motor stays outside the wrap work.

Take the rotor with 4 blades and make a small hole through its middle. This is where the motor's pointy part will connect with the rotor.

Connect the positive and negative wires to your motor with the help of a hot gun, making sure you leave an adequate length of wire to connect with the LED bulb on the other ends.

Glue the paper wrapping the motor to the pole and leave it to dry.

Step #5: Building the house

You'll also need to make a house model which will be lit using the power produced by your wind turbine.

To do this, cut 4 pieces of equal size to make the 4 walls of your house. Cut a door opening one piece and cut out window openings on the 3 remaining pieces.

Glue all the 4 pieces together to complete make your house, making sure the piece with door cutout stays on the front.

Now glue both your complete house and the tower holding the entire turbine to the plywood board such that all your project exists on a single platform.

Then, connect the motor and LED wires together.

Step #7: Get the turbine turning

Now that everything is set and ready to run, it's time to get the turbine turning to produce electrical energy and light that bulb hanging on your window.

Use an external source of wind, preferably a table fan, to make your turbine blades rotate. These will then rotate the motor, which will, in turn, produce electrical energy, which will then flow through the wires and light your LED bulb!

Conclusion:

The construction of the wind turbine is the most significant phase in term of the environmental impacts produced by wind energy, both for offshore wind power plants and onshore wind power plants. Environmental impacts generated in transportation and operation phases cannot be considered significant in relation to the total environmental impacts of both the offshore and onshore wind power plants. However, in offshore wind power plants, zinc is discharged from offshore cables during the operational stage.

The energy balance of wind energy is very positive. The energy consumed in the whole chain of wind plants is recovered in several average operational months. The comparison of wind energy with conventional technologies highlights the environmental advantages of wind energy. Quite significant emissions reductions can be obtained by producing electricity in wind farms instead of using conventional technologies such as coal and natural gas combined cycle power plants. The significant benefits of wind energy should play an increasingly important role in deciding what kinds of new power plants will be built.

That's it! Successfully constructed a simple working home turbine

B.L.E. Society

BASAVAPRABHU KORE ARTS
SCIENCE AND COMMERCE
COLLEGE CHIKODI

SEMINAR SCRIPT

Name :- Soundarya T Lokare

class :- Bsc 2nd sem

Roll no :- 76

sub :- Botany [OEC]

Topic :- *Simsarouba* *GlaucA* oil process
and character

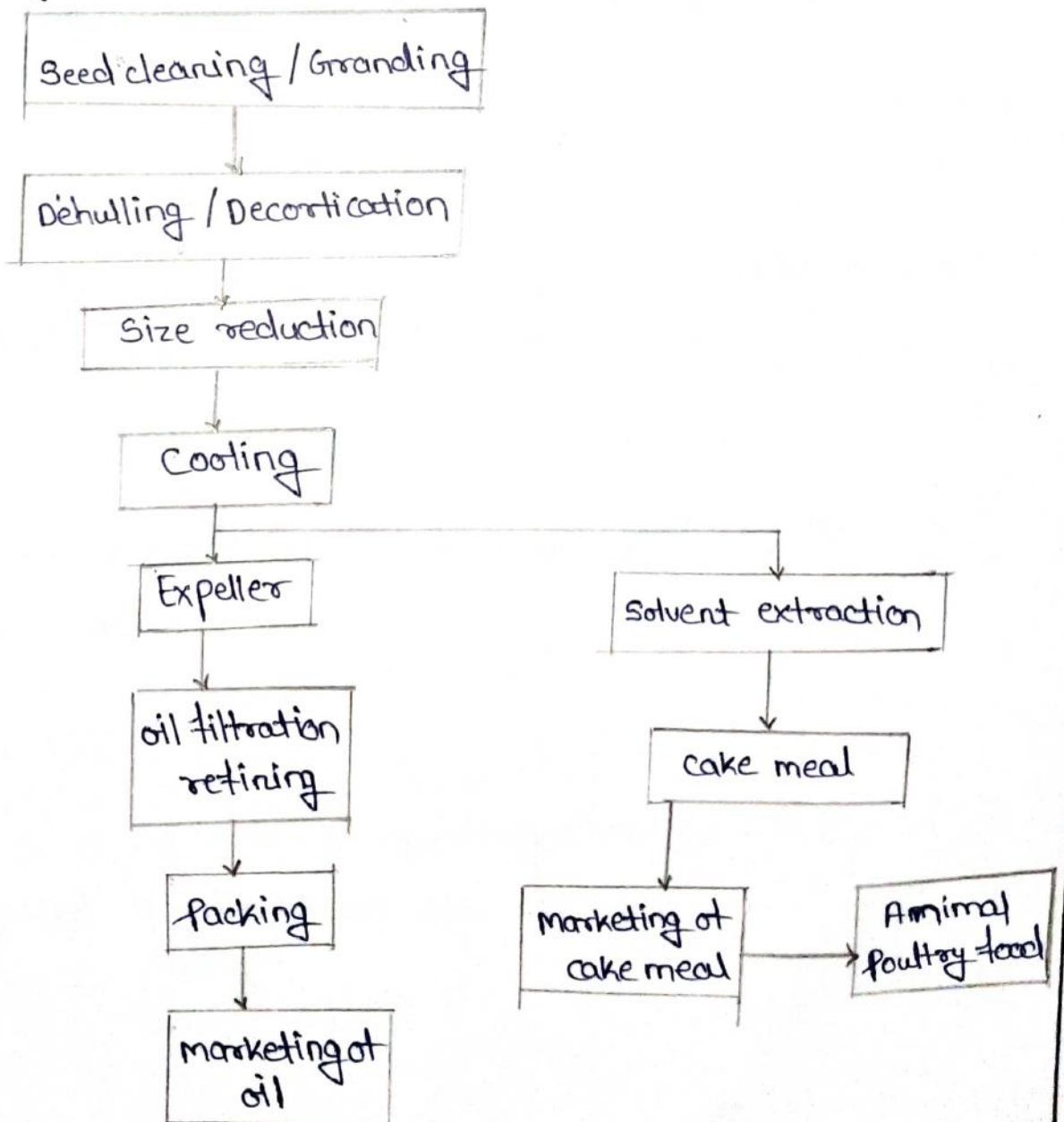
collecting and processing of seeds

The *Simarouba glauca* ripe fruits were collected from Coimbatore, Erode, Krishnagiri and Dharmapuri districts, fruits were depulped, processed and the seeds were air dried, packed and stored at -28°C in deep freezer for further analysis.

Extraction of oil / determination of oil yield.

Simarouba glauca seed oil was extracted with methanol, chloroform, petroleum ether ($40-60^{\circ}\text{C}$).

Processing of oil seeds:



seed cleaning :-

The separation of seeds from pods and any non-materials

Decortication

The act or process of removing the outer cover (such as bark or husk)

cooling

The removal of heat actually usually resulting in a lower temperature.

Expeller

A machine that presses seeds through a cavity and used to extract oil

oil filtration refining

The removal of contaminants through some type of synthetic, paper, pleated or wound media

solvent extraction

preferential dissolution of oil by contacting oil seeds with a liquid solvent.

packing

packing is a process of building a container or box for a product for transport and storage.

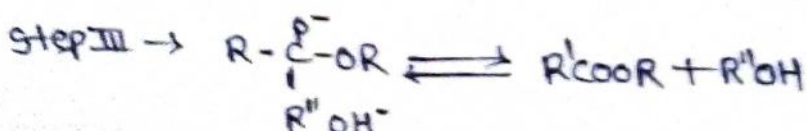
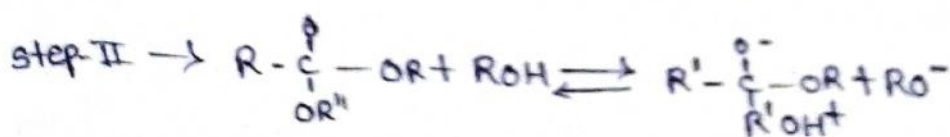
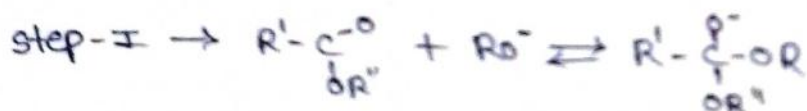
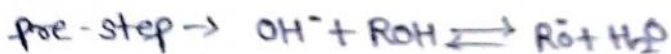
Uses of *Simarouba glauca*

- The leaves and bark have a long history of the medicinal use in the treatment of malaria, fever and dysentery.
- It is used for astringent to stop bleeding.
- They have been used as a digestive and to treat parasites.
- The seed can be used for industrial purposes in the manufacture of biofuels, soaps, detergents, lubricants.
- Treat dysentery, fever, malaria, skin sores, internal bleeding and anemia.
- It is used for treating skin diseases.
- It is used for gastric cancer.
- It is used for antimicrobial.

Production of Biodiesel

Simarouba glauca seed was obtained from an oil industry at Gujarat state in India. The shell was separated manually and the oil was extracted by a conventional mechanical expeller.

Biodiesel transesterification reaction



- 1) Aditya . A. Nilaiyyoli (9) → Important species in Karnataka (family, part used, economic importance)
- 2) Ankita . G. Vaddar (23) → Green revolution.
- 3) Bhimarav . A. Sajane (30) → Fennel.
- 4) Heenakausar . M. Siddique (39) → Clove.
- 5) Kavita . L. Mehechannavar (41) → Black pepper.
- 6) Nusrat . G. Sayyad (70) → Cardamom
- 7) Pawar . Ritesh . Ramesh (72) → Origin and morphology of Mango.
- 8) Rohan . S. Kamble (87) → Cultivation, processing & uses of mango.
- 9) Rutuja . R. Chonchannavar (92) → Origin & Morphology of grapes.
- 10) Samruddhi . V. Gudaveer (97) → Cultivation, processing & uses of grapes.
- 11) Sneha . H. Kambar (110) → Origin and Morphology of Citrus.
- 12) Vishal . A. Vadavade (132) → Cultivation, processing and uses of Citrus.

Rollno.	Name	Sign
09	Aditya . A. Nilaiyyoli	
72	Pawar Ritesh R.	
39	Heenakausar . M. Siddique	
132	Vishal . A. Vadavade	
87	Rohan . S. Kamble	
30	Bhimarav A. Sajane	
23	Ankita . G. Vaddar	
41	Kavita . L. Mehechannavar	
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92	Rutuja . R. Chonchannavar	
97	Samruddhi . V. Gudaveer	
110	Sneha . H. Kambar	

PRINCIPAL
 KLES'S Basavaprabhu Kore
 Arts, Science and Commerce College
 CHIKODI - 591 201

- 1) Arpita. R. Naik (25) → Types of microbial culture.
- 2) Bhagyoday. B. Kivadamnavar (28) → Economic importance of Virus.
- 3) Deepa. managanvi (35) → Storage medium
- 4) Madha. Mulla (51) → Preservation method of microbial culture
Overlying cultures with mineral oils.
- 5) Nagesh. Kagawade (65) → Citrus canker disease.
- 6) Namrata. Chimmal (66) → Gram's staining.
- 7) Navyastrushti. Dambal (67) → Diseases caused by prions.
- 8) Poonam. B. Malage (73) → Lyophilisation.
- 9) Pratik. A. Magadum (77) → Simple staining of bacteria.
- 10) Roopa. R. Desai (90) → Structure of lichens.
- 11) Sourabh. A. Rendale (115) → Selective media.
- 12) Uttom. S. Varute (127) → Differential staining.
- 13) Veena. L. Masaguppi (130) → Microbiological Staining.
- 14) Nishal. S. Aihole (134) → Natural culture media for microbes.
- 15) Yallakka. N. khot (135) → Microbial culture collection and their importance.
- 16) Laxmi. N. Payappagal (138) → ITCC.

Roll no	Name	Sign
65	Nagesh. Kagawade	
127	Uttam varute	
115	Sourabh. A. Rendale	
67	Navyastrushti. N. Dambal	
135	Yallakka. N. khot	
73	poonam. B. Malage	
51	Madha - M. Mulla.	
130	Veena L. Musaguppi	
138	Laxmi. N. payappagal	
90	Roopa - R. Desai	

Teachers

1. Shri. R.R. Naik
2. Miss. S.S. Sangane
3. Miss. K.A. Halli

HEAD

DEPARTMENT OF BOTANY

PRINCIPAL

KLES'S Basavaprabhu Kore
Arts, Science and Commerce College
CHIKODI - 591 201

Seminar and Assignment Attendance

Roll No
Rta.

Paper I

Name Sign

01)	Afreen Nadaf	nadaf
12)	Asmita. D. Desai	<u>A.</u>
21)	Deepali. S. Talwar	<u>Deepali</u>
78)	Sushmita. H. Shinge	<u>S.H.</u>
61)	Saniya. F. Mulla	<u>S.M.</u>
20)	Muskan. K. Nadaf	M.K.Nadaf
26)	Jyoti. S. Putane.	<u>Putane.</u>
11)	Ashwini. S. madhale.	A.S.madhale
92)	Taisun. S. Jaramar	<u>T.S.</u>
73)	Sneha. Aman. Sanadi	<u>Sanadi</u>
14)	Kalavati. A. Chougale	<u>K.</u>

Paper II

Afreen Nadaf	nadaf
Asmita D. Desai	<u>A.</u>
Deepali. S. Talwar	<u>Deepali</u>
Sushmita. H. Shinge	<u>S.H.</u>
Saniya. F. Mulla	<u>S.M.</u>
Muskan. K. Nadaf	M.K.Nadaf
Jyoti. S. Putane.	<u>Putane.</u>
Ashwini. S. madhale.	A.S.madhale
Taisun. S. Jaramar	<u>T.S.</u>
sneha. Aman Sanadi	<u>Sanadi</u>
Kalavati. A. Chougale	<u>K.</u>

SEMINAR

BASAVAPRABHU KORE

ARTS, SCIENCE

AND COMMERCE

COLLEGE CHIKODI

NAME :- Sneha. Aman sanadi

CLASS :- B.A Ist YEAR 2nd SEM

SUBJECT :- HINDI

ROLL NO :- 8-73



PAPER - 1

पद्य का सारांश लिखिए

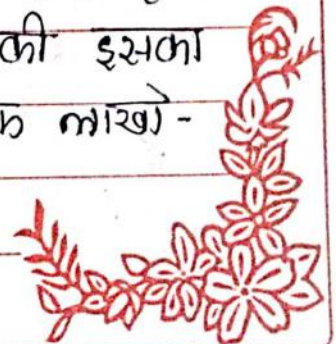
युगावतार बापू

सोहनलाल द्विवेदी

कवि परिचय :- हिन्दी के प्रसिद्ध कवि सोहनलाल द्विवेदी का जन्म 22 फरवरी 1906 को उत्तर प्रदेश स्थित जिला फतेहपुर के बिन्दकी नामक गाँव में हुआ।

चल पड़े जिधर दो डग मग में
बढ़ चले कोटि पग उसी ओर।
पड़ गई जिधर भी एक दृष्टि,
गड़ गये कोटि दृग उसी ओर ॥

प्रश्न कविता में कवि ने स्वतंत्रता आन्दोलन के युगावतार गांधी को समर्प भावना से वन्दना की है। कवि कहते हैं कि जिस तरह चलते हैं लोग यानी बापु उशी तरह दो डग मग जाने हैं। तो कोटि लोग बापु के ओर चल पड़ गे हैं और किस ओर पड भी हैं। एक दृष्टि गड़ जाते हैं। कोटी - कोटी लोग उसी ओर यानिकी इसका अर्थ है कि जिस तरह बापु होता हैं उसी तरह लाखों-करोड़ों लोग भी उसी ओर जाने हैं।



जिसके सिर पर निज धरा हाथ,
 उसके सिर रक्षक कोटि हाथ ।
 जिस पर निज मस्तक झुका दिया,
 झुक गये उसी पर कोटि माथ ॥

कवि ने कहा है कि गांधी जी को मद्मानत का स्थान देने हुए कविता में कहा गया है । कि जिसके सिर पर निज और सच्चे लोगों का हाथ उसके सिर कोटी रक्षकों का हाथ है और जिस पर निज मस्तक के हाथ झुक जाते हैं । जब कोटि हाथ भी झुक जाते हैं कवि थानी बापु जी को लोग कहते हैं कि तुम्हारे सिर पर हमारे लोको - करोड लोग के हाथ हैं कहते हैं ।

हे कोटि चरण , हे कोटि बाहु,
 हे कोटि रूप , हे कोटि नाम ,
 तुम एक मूर्ति , प्रतिमूर्ति कोटि,
 हे कोटि मूर्ति , तुमको प्रणाम ॥

कवि कहते हैं कि गांधी थानी युगावतार बापु को सहयोग करने के लिए उसके पिछे कोटी चरण और कोटी हाथ हैं । कोटी रूप है और कोटी नाम के लोग हैं और तुम्हारे पिछे हम सब लोग हैं तुम्हारे मत मानो आगे बड़ो तुम एक मूर्ति हो और हम सब तुम्हारी प्रतिमूर्ति कोटी जन हैं । कोटी मूर्ति तुमको प्रणाम करती है केइकर कवि पाठकरों से कहा रहों हैं ।

युग बढा तुम्हारी हुँसी देख ,
 युग हटा तुम्हारी भुक्ति देख ॥
 तुम अचल मेखला बन भू की,
 खींचते काल पर अमित रेख ॥

कवि कहते हैं कि बडा तुम्हारी होयी देख कर युग हटा
 तुम्हारी भुक्ति देखकर यानी तुम्हारी गुस्सा देखकर , तुम्हारी
 हुँसी देखकर लोग भुग के ओर बढ़ते हैं और तुम्हारा गुस्सा
 देखकर पिछ हट खींचते हो उसी तरफ लोग रेख जाते हैं ,
 इसलिया बापु को बहुत ज्यादा संबोधक किया गया है ।

तुम बोल उठे , युग बोल उठा,
 तुम मौन रहे , युग मौन रहा ।
 कुछ कर्म तुम्हारे संचित कर ,
 युग - कर्म जगा , युग-धर्म तला ॥

कवि कहते हैं कि बापु से तुम बोल उठे , युग बोल
 उठा ; तुम अपने बडोगे तो युग आगे बडेगा और तुम कर्म-
 कार्य करोगे तो युग भी तुम्हारी संचित करेगा युग कर्म को
 जगाना है और युग धर्म के भी जगाना है , युग को बहुत
 बडा स्थान दिया गया है । और महन्तपूर्ण माना गया है ।

युग - परिवर्तक , युग - संस्थापक,
 युग - संचालक , हे युगाधार !
 युग - निर्माता , युग - मूर्ति ! तुम्हें,
 युग - युग तक युग का नमस्कार ॥

कवि कहते हैं कि ब्रह्म से तुम बोलें बड़े युग बोलें
 बड़े तुम अपने लक्ष्मणों से युग बोलें बड़े और तुम

प्रसन्न कविता में गांधी को युग परिवर्तक , युग
 संचालक , युग संपादक और युग निर्माता कहा गया है ,
 तुम युग को निर्माण करने वाले हो और युग की मूर्ति
 हो , तुम हैं तो युग है और युग का निर्माता कहकर
 युग - युग तक युग तक युग का नमस्कार करने का
 अध्याना किया गया है ।

प्रसन्न कविता में कवि कहते हैं की गांधी का
 मार्ग नियम तर्फ है इसी और करोड़ों लोग होते हैं और
 युग का निर्माता , संस्थापक होता है कहकर इस प्रसन्न
 कविता में व्यक्त किया जाता है ।

पद्य का आरंभ लिखिए।

धरती

केदारनाथ अग्रवाल

कवि परिचय :- केदारनाथ अग्रवाल का जन्म 1 अप्रैल 1911 को कमासिन बाँदा [उत्तर प्रदेश]

पिता :- श्री हनुमानप्रसाद अग्रवाल जो प्रेमभोगी मान, उपनाम से कविताएँ लिखते थे; 'मधुरिमा' शीर्षक से उनका एक संकलन भी प्रकाशित हुआ है।

शिक्षा :- बी. ए. इलाहाबाद विश्वविद्यालय, एल. एल. बी., डी. ए. की कॉलेज, काजपुर।

यह धरती है उस किसान की
जो बँलों के कंधों पर
बरसात घाम में,
जुआ भाग्य का रख देता है,
खून पादनी हुई वायु में,
पैनी कुसी खेत के भीतर,
दूर कलौजे तक ले जाकर,
जोत डालता है मिट्टी को
पाँस डालकर,

और बीज फिर छो देता है।
 नये वर्ष में नयी फसल के,
 तेरे अन्न का लग जाता है,
 यह धरती है उस किसान की।

प्रस्तुत कविता में कवि ने बताया है कि धरती
 केवल किसान की है। जो बलों के सहारे वर्षात घास में
 खेत के भतिर किसान बहुत घास में खेत के भतिर किसान
 बहुत मेहनत करता है और कत्तेने एक लगे जाकर उसे देता
 है और आगे उच्छे फसल में लाने के लिए किसान बहुत
 मेहनत और परिश्रम करता है। उसके बाद किसान नये
 वर्ष तक इनजारे के बाद नयी फसल आती है और तेरे सारा
 अन्न का लग जाता है और सब को अन्न मिलता है।
 इसलिए यह धरती किसान की।

नही कृषा की,
 नही राम की,
 नही भीम, सहदेव, नकुल की,
 नही पार्थ की,
 नही शव की, नही शंकर की,
 नही तेज, नलवार, धर्म की,
 नही किसी की, नही किसी की
 धरती है केवल किसान की।

कवि ने बताया है कि धरती केवल किसान की
 है धरती न कृषि की, न राम की है, न भीम, सइदेव
 नकुल की नही पार्थ की यह धरती किसान की है। नही
 राघ की, नही शंख की यहाँ है। नेत्र, तलवार किसी की
 नही, ना सकती यह धरती और किसी की नही यह
 धरती उस किसान की है जो मेहनत और परिश्रम करता है।

सूर्योदय, सूर्यास्त असंख्यों
 सोना ही सोना बरसाकर
 मोल नही लो पाए इसको
 भीषण बादल
 आसमान में गरज - गरजकर
 धरती को न कभी दूर पाये,
 प्रलय सिंधु में डूब - डूबकर
 उभर - उभर आयी है ऊपर।
 भूजलों - भूकम्पों से यह मिट न सकी है।

कवि कहते हैं कि सूर्योदय हो सूर्यास्त हो किसान
 उसकी मेहनत है और सोना ही सोना पाना है यही सोना
 बरसाकर उसका कोई भी मोल नही पाया है और भीषण
 बादल आसमान में गरज - गरजकर धरती को कभी
 भी दूर नही पाया और किसान कहता है कि धरती
 प्रलय - सिंधु जैसे अनेक समस्याओं से डूब देती है
 इतना डूबकर उभर - उभर के ऊपर आती है

और किसानों को अन्न देती हैं। इतना डी नहीं धरती
अनेक सारे भूकम्पों से भी बचकर आयी हैं। किसान
की हैं। यह धरती इस तरह की धरती बनाया है। और
मिट न सकी हैं किसान की हैं।

यह धरती है उस किसान की,
जो मिट्टी का पूर्ण पारखी,
जो मिट्टी के संग साथ ही,
नपकर,
गलकर,
जीकर,
मरकर..

खपा रहा है जीवन अपना,
देख रहा है मिट्टी में सोने का सपना
मिट्टी की महिमा गाना
मिट्टी के ही अन्तस्तन में,
अपने मन की खाद मिलाकर,
मिट्टी को जीवन रखता है।
खुद जीता है।
यह धरती है उस किसान की !

यह धरती है उस किसान की जो मिट्टी के
साग, मिट्टी के संग नपकर, गलकर शान्ति मिलाकर
जीकर, मरकर अपना जीवन खपा रहा है। और उसमें
ही किसान सोने के स्वप्न देखता है।



मिट्टी की ही महिमा करता है और मिट्टी
के ही गुण गाता है और उसकी हृदय के भीतर पड़ुंय
स्वयं के तन की खाद मिलाकर उसे जीवन रखता है
और खुद स्वयं के तन की खाद मिलाकर, मिट्टी को
जीवित रखता है, खुद जीता है। यह धरती है उस किसान
की है!

