



KLE
P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS
B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: BOTANY
Course Name: Algae, Bryophytes, Pteridophyte
& Gymnosperm

Semester: II
Duration: 2Hours 30 Minutes


Course Code: 118DSCC02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No. (2) Draw the diagrams wherever necessary

- | | UNIT-I | Marks |
|--|---------------|--------------|
| 1. a) What is harmogonia? | | 2 |
| b) Explain asexual reproduction in Vaucheria. | | 5 |
| c) With a neat labelled diagram describe male and female reproductive structures of chara. | | 8 |
| OR | | |
| 2. a) What is Carpogonium? | | 2 |
| b) Describe the sexual reproduction in Nannandrous species of Oedagonium. | | 5 |
| c) Give an account of thallus structure of Ectocarpses. | | 8 |
| UNIT-II | | |
| 3. a) What are liverworts? | | 2 |
| b) Explain the internal structures of Marchantia thallus. | | 5 |
| c) With a neat labelled diagram describe the internal structure of Funaria Capsule. | | 8 |
| OR | | |
| 4. a) What are Pseudoelater's? | | 2 |
| b) Explain Vegetative reproduction in Marchantia. | | 5 |
| c) Describe the male and female reproductive structures of Riccia. | | 8 |
| UNIT-III | | |
| 5. a) What is Homosporus? | | 2 |
| b) Explain T.S. of Psilotum stem. | | 5 |
| c) With a neat labelled diagram explain the L.S. of Selaginella cone. | | 8 |
| OR | | |
| 6. a) What is Carinal Canal? | | 2 |
| b) Explain with example heterospory and seed habit. | | 5 |
| c) With a neat labelled diagram explain T.S. of Marsilea rhizome. | | 8 |
| UNIT-IV | | |
| 7. a) What is Ovuliferous scale? | | 2 |
| b) Describe the Anatomy of Coralloid roots of cycas. | | 5 |
| c) Write the general characters of Gymnosperms. | | 8 |
| OR | | |
| 8. a) What is an Orthotropus Ovule? | | 2 |
| b) Explain the male strobilus of Gnetum. | | 5 |
| c) With a neat labelled diagram explain the internal structure of Pinus needle. | | 8 |


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K. L. E. Society's P. C. Jabin Science College
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Karnataka - 580031.

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AUTONOMOUS

B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: BOTANY

Semester: II

Course Name: Biofertilizers

Duration: 2Hours 30 Minutes

Course Code: 118OEC02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No.

(2) Draw the diagrams wherever necessary

UNIT-I

	Marks	CO	BTL
1. a) Azotobacter.	2	1	2
b) Explain Actinorrhizal Symbiosis.	5	1	3
c) Describe the isolation and identification of Rhizobium.	8	1	3

OR

2. a) Define Biofertilizer.	2	1	2
b) Explain the isolation and identification of Azotobacter.	5	3	3
c) Describe the general character of Biofertilizer.	8	2	3

UNIT-II

3. a) What do you mean by Cyanobacteria?	2	1	2
b) Write the growth factors for the growth of Azolla.	5	2	3
c) Explain nitrogen fixation process by blue green algae.	8	2	3

OR

4. a) What is Azolla biofertilizer?	2	1	2
b) Write the role of Bluegreen algae in rice productivity.	5	2	3
c) Explain the association of Azolla and Anabaena with labelled diagram.	8	3	3

UNIT-III

5. a) What is AMF?	2	1	2
b) What is mycorrhizal association? Explain its types.	5	1	2
c) Describe the isolation of spores from soil.	8	2	3

OR


6. a) What is phosphate solubilizers?	2	1	2
b) Describe culturing of AM Fungi.	5	2	3
c) Describe culturing of PSB.	8	3	3

UNIT-IV

7. a) Define Vermi Compost.	2	1	2
b) Define organic fertilizer and explain the types.	5	2	3
c) Explain types and methods bio compass.	8	3	3

OR

8. a) Green manuring.	2	1	1
b) Explain basic requirements for Bio composting.	5	2	3
c) Explain the methods of Vermi compost and its types.	8	3	3


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P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS
B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: BIOTECHNOLOGY
Course Name: Microbiological Methods
Course Code: 122DSCC02T-II-22

Semester: II
Duration: 2Hours 30 Minutes
Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.
No. (2) Draw the diagrams wherever necessary

- | | Marks |
|---|-------|
| UNIT-I | |
| 1. a) Define Centrifuge. | 2 |
| b) Write a short note on compound microscope. | 5 |
| c) Discuss in detail about TEM. | 8 |
| OR | |
| 2. a) What is Paper Chromatography? | 2 |
| b) Write the application of Spectrophotometer. | 5 |
| c) Discuss in detail about Ultra centrifuge and its application. | 8 |
| UNIT-II | |
| 3. a) Define Disinfectant. | 2 |
| b) Explain Tyndallization. | 5 |
| c) Discuss in detail moist method of Sterilization. | 8 |
| OR | |
| a) Expand and define HEPA. | 2 |
| b) Explain radiation sterilization. | 5 |
| c) Discuss in detail chemical method of sterilization. | 8 |
| UNIT-III | |
| 5. a) Define Enrichment media. | 2 |
| b) Explain the process of serial dilution. | 5 |
| c) Discuss in detail preservation of pure cultures. | 8 |
| OR | |
| 6. a) Define Natural media. | 2 |
| b) Explain Simple stain method. | 5 |
| c) Discuss in detail plating method. | 8 |
| UNIT-IV | |
| 7. a) What are antifungal agent? | 2 |
| b) Explain the mechanism of action of Amphotericin. | 5 |
| c) Discuss in detail about antimicrobial agents. | 8 |
| OR | |
| 8. a) Explain MRSA. | 2 |
| b) Explain the mechanism of action of Amantadine. | 5 |
| c) Discuss in detail Agar well diffusion method and write the application antimicrobial agents. | 8 |


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AUTONOMOUS
B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: BIOTECHNOLOGY

Semester: II

Course Name: Applications of Biotechnology in Agriculture

Duration: 2Hours 30 Minutes

Course Code: 122OEC02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No.

(2) Draw the diagrams wherever necessary

UNIT-I

Marks

- | | | |
|----|---|---|
| 1. | a) Define Tissue Culture. | 2 |
| | b) Explain Banana Tissue Culture process. | 5 |
| | c) Explain the process of Mushroom cultivation. | 8 |

OR

- | | | |
|----|--|---|
| 2. | a) Define Micropropagation. | 2 |
| | b) Write a note on Scope of Agriculture Biotechnology. | 5 |
| | c) Discuss the Basic aspects of plant tissue culture and applications. | 8 |

UNIT-II

- | | | |
|----|---|---|
| 3. | a) Define Plantibodies. | 2 |
| | b) Discuss Ethical issues in GM crops. | 5 |
| | c) Explain the process of BT- Cotton development. | 8 |

OR

- | | | |
|----|--|---|
| 4. | a) What are Edible vaccines? | 2 |
| | b) Write a note on application of transgenic plants. | 5 |
| | c) Explain the application of Molecular Pharming. | 8 |

UNIT-III

- | | | |
|----|--|---|
| 5. | a) Flavr Savr. | 2 |
| | b) Write a note on BT- based pesticides. | 5 |
| | c) Discuss Antisense RNA Technology. | 8 |

OR


- | | | |
|----|--|---|
| 6. | a) What is Ligase Enzyme? | 2 |
| | b) Explain the mechanism of Genetic Engineering. | 5 |
| | c) Discuss the application of Genetic Engineering. | 8 |

UNIT-IV

- | | | |
|----|---|---|
| 7. | a) Restriction Endo nuclease. | 2 |
| | b) Explain BT- Brinjal. | 5 |
| | c) Explain the development of Edible vaccine. | 8 |

OR

- | | | |
|----|--|---|
| 8. | a) What are transgenic plants? | 2 |
| | b) Explain the application of Bio- Pesticides. | 5 |
| | c) Explain the principles of plant tissue culture. | 8 |



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**P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS****B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022****Subject: CHEMISTRY****Semester: II****Course Name: General Chemistry- II****Duration: 2 Hours 30 Minute****Course Code: 116DSCC02T-II-22****Max Marks: 60****Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.**

No.

UNIT-I

Marks

1. a) Define lattice energy. 2
b) Explain Born Haber Cycle for the formation of sodium chloride. 5
c) (i) Predict the shape and geometry of the following molecules. 2+2
1. PF_5 2. BeH_2
(ii) Construct the molecular orbital diagram of CO molecule. 4

OR

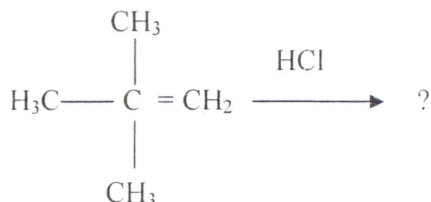
2. a) Define Ionization Energy. 2
b) Explain the properties of Ionic Compounds. 5
c) i) Construct Born- Haber Cycle for CsO and calculate the Lattice Energy from the following data. 4
Given: $\Delta H_f = -233 \text{ KJ/mol}$
 $\Delta H_{\text{sub}} = 78 \text{ KJ/mol}$
 $\text{IE} = 375 \text{ KJ/mol}$
 $\Delta H_{\text{dis of O}_2} = 494 \text{ KJ/mol}$
 $1^{\text{st}} \text{ EA} = -41 \text{ KJ/mol}$
 $2^{\text{nd}} \text{ EA of O} = 845 \text{ KJ/mol}$
ii) Predict the resonating structure of NO_3^- & CO_3^{2-} ions 4

UNIT-II

3. a) Give the preparation of alkanes by Grignard Reagent. 2
b) Explain conformational analysis of Butane. 5
c) Illustrate the mechanisms of dehydrohalogenation of alkyl halides by E_1 , E_2 , $\text{E}_{1\text{cb}}$ pathways. 8

OR

4. a) Give the products of following reactions. 2



- b) Explain Baeyer's strain theory and Sachse Mohr theory of Strainless rings. 5
c) Illustrate the kinetic and thermo dynamical controlled addition of HBr to 1, 3 - butadiene. 8

P.T.O

UNIT-III

5. a) Define chemical kinetics with an example. 2
b) Determine the order of a reaction by using differential equation. 5
c) i) Interpret activated complex theory of Bimolecular reactions. 4+4
ii) Construct the structure of KCl and define Bragg's Law.

OR

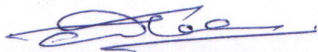
6. a) Define Unit cell with an example. 2
b) Illustrate the structures of nematic and cholesteric phases in liquid crystals. 5
c) i) A second order reaction takes 40 min for 30% decomposition. Calculate half- life period of the reaction. 4+4
ii) Illustrate defects in crystals.

UNIT-IV

7. a) Define BOD. 2
b) Differentiate the advantages of Organic reagents over Inorganic reagents. 5
c) i) Calculate the COD of the effluent sample when 25cm³ of the effluent requires 9cm³ of 0.001M potassium dichromate solution for complete oxidation. 4+4
ii) Explain the mechanism of co- precipitation with suitable example.

OR

8. a) List the salts/ ions responsible for the temporary and permanent hardness of water. 2
b) Illustrate the activated sludge method in the treatment of sewage of water. 5
c) i) Explain the structure, specificity, conditions and applications of DMG in inorganic analysis. 4+4
ii) Explain softening of water by ion exchange method.


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AUTONOMOUS****B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022****Subject: CHEMISTRY****Course Name: Molecules of Life****Course Code: 116OEC02T-II-22****Semester: II****Duration: 2Hours 30 Minutes****Max Marks: 60****Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.**

No.

UNIT-I		Marks
1. a)	What are reducing and non-reducing sugars?	2
b)	Give classification of carbohydrates.	5
c)	(i) What is protein denaturation? List out the cause of protein denaturation.	4
	(ii) What is Starch? Explain its structure.	4
OR		
2. a)	Draw Fischer and Haworth structure of D-Glucose and α -D-Glucopyranose.	2
b)	Explain the Secondary structure of protein.	5
c)	i) Write a note on Muta-rotation and give two examples which shows Muta-rotation.	4
	ii) Differentiate the fibrous and Globular proteins.	4
UNIT-II		
3. a)	What is Saponification?	2
b)	What is Rancidity? Discuss on its prevention methods.	5
c)	Explain Watson-Crick Model of DNA.	8
OR		
4. a)	What is Iodine Value?	2
b)	Give the biological importance of Triglycerides and glycolipids.	5
c)	Draw the structure of Nucleosides and Nucleotides of Adenine and guanine with deoxy ribose sugar.	8
UNIT-III		
5. a)	Mention any two deficiency diseases of Hormones.	2
b)	Differentiate Catabolism and anabolism with suitable examples.	5
c)	Explain Krebs's cycles.	8
OR		
6. a)	Write the structure of Riboflavin (Vitamin- B ₂).	2
b)	Write a note on Calorific value of food.	5
c)	Explain sources, deficiency, diseases and structure of α -tocopherol and Vitamin- C.	8
UNIT-IV		
7. a)	Draw Fischer and Haworth structure of D- Fructose and β - D- Fructose.	2
b)	What are Polynucleotides and give their structure?	5
c)	Illustrate the oxidation of food materials as a source of energy for cells with suitable examples.	8
OR		
8. a)	Write a short note on glucose.	2
b)	Explain the biological importance of oils and fats.	5
c)	Define Hormones. Explain their classification with examples and give any two examples.	8

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B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: COMPUTER SCIENCE

Semester: II

Course Name: Data Structures

Duration: 2Hours 30 Minutes

Course Code: 124DSCC02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No.

Marks

UNIT-I

1. a) What is structure? How student information can be displayed using structures. 2
- b) Explain three different ways of structures and mention the syntax of all the 3 structures. 5
- c) Difference between structure and union and also mention the syntax of both. 8

OR

2. a) How structure can be declared using 3 different ways? Mention the syntax of tagged structure. 2
- b) Mention two types of memory allocation functions and explain them. 5
- c) What are four types of memory management functions? Explain them with syntax. 8

UNIT-II

3. a) What is searching? List the searching techniques. 2
- b) Define bubble sort. Solve it using 7, 2, 12, 8, 3 bubble sort technique. 5
- c) Explain various types of sorting techniques with example. 8

OR

4. a) What is binary search? Also define linear search. 2
- b) Define Merge sort. Sort the following elements using merge sort 38, 27, 43, 3, 9, 82, 10. 5
- c) What is Selection Sort? Define quick sort. Explain both using examples. 8

UNIT-III

5. a) What is Stack? How stacks can be represented? 2
- b) What are operations of stack and explain them. 5
- c) What are types of queues? Explain them briefly. 8

OR

6. a) What is Queue? How queue can be represented? 2
- b) What are various operations performed on queues? Explain them. 5
- c) What is infix and postfix expression? Obtain the postfix expression for $((A + (B - C) * D ^ E + F)$. 8

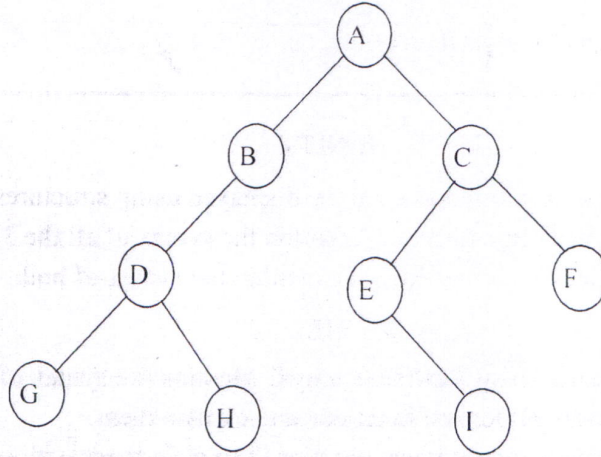
UNIT-IV

7. a) What is linked list? How it is represented? 2
- b) What are the operations of single linked list? 5

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c) Write the preorder, post order and inorder of the following binary tree.

8



OR

8. a) What is Circular linked list? How it is represented. 2
b) What are the operations of double linked list? 5
c) What are the types of binary tree traversal? Explain them with examples. 8


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B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: COMPUTER SCIENCE

Semester: II

**Course Name: Fundamentals of Computer Network
and Mobile Application**

Duration: 2Hours 30 Minutes

Course Code: 124OEC02T-II-22

Max Marks: 60

**Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.
No.**

UNIT-I

Marks

1. a) What are the two types of connection technologies? Explain. 2
- b) What are different network criteria's? Explain. 5
- c) What are components of data Communication? Explain. 8

OR

2. a) Define internet. Explain its applications. 2
- b) How network models are classified? Mention the types. 5
- c) Write Brief history of internet and its applications. 8

UNIT-II

3. a) What is connection oriented protocol? Draw the diagram. 2
- b) What are the functions of physical layer and data link layer in OSI reference Model? Explain. 5
- c) How Computer Network models are classified? Explain seven layers of OSI reference model. 8

OR

4. a) What is the function of TCP/ IP models internet layer? 2
- b) List the layers of TCP/ IP models. Explain its function. 5
- c) With suitable example explain protocols of TCP/ IP model and draw a neat diagram of it. 8

UNIT-III

5. a) What is Cellular telephony? Draw the cellular structure. 2
- b) Draw the diagram of Cellular system infrastructure. 5
- c) What are the four types of addressing methods used in Computer network addressing? Explain with diagram. 8

OR

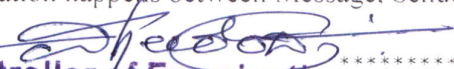
6. a) What are the three types of Satellite networks? Draw a neat diagram. 2
- b) Briefly explain the Satellite networks. 5
- c) Explain first, Second and third generation of cellular telephony. 8

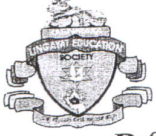
UNIT-IV

7. a) What is meant by routing? 2
- b) What are the different forms of data representation? Explain. 5
- c) Explain functions of all the seven layers of OSI reference model. 8

OR

8. a) What is broad casting? 2
- b) Explain about LAN, WAN and MAN. 5
- c) How communication happens between Message, Sender, Receiver, Transmission medium? Explain. 8


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B.Sc. II SEMESTER END EXAMINATION AUG/ SEPT- 2022

Course Name: Employable Aptitude & Soft Skills
Course Code: 125-EASS-01T

Semester: II
Duration: 1Hours 30 Minutes
Max Marks: 30

Instructions to Candidates: 1. Section A: Need to answer any 15 questions from the given 20 questions.
3. Section B: Need to answer any 15 questions from the given 20 questions.

SECTION- A

Marks

1. Which of the following fractions is greater than $\frac{3}{4}$ and less than $\frac{5}{6}$? 1
(1) $\frac{1}{2}$ (2) $\frac{2}{3}$ (3) $\frac{4}{5}$ (4) $\frac{9}{10}$
2. $\frac{0.009}{?} = 0.01$ 1
(1) 0.0009 (2) 0.09 (3) 0.9 (4) 9
3. What least number must be added to 1056, so that the sum is completely divisible by 23? 1
(1) 2 (2) 3 (3) 18 (4) 21
4. The largest 4digit number exactly divisible by 88 is : 1
(1) 9944 (2) 9768 (3) 9988 (4) 8888
5. How many natural numbers are there between 23 and 100 which are exactly divisible by 6? 1
(1) 8 (2) 11 (3) 12 (4) 13
6. How many of the following numbers are divisible by 3 but not by 9? 1
2133, 2343, 3474, 4131, 5286, 5340, 6336, 7347, 8115, 9276
(1) 5 (2) 6 (3) 7 (4) 4
7. If the number $91876 * 2$ is completely divisible by 8, then the smallest whole number in place of * will be : 1
(1) 1 (2) 2 (3) 3 (4) 4
8. A is two years older than B, who is twice as old as C. If the total of the ages of A, B and C is 27, then how old is B? 1
(1) 7 (2) 8 (3) 9 (4) 10
9. A man is 24 years older than his son. In two years, his age will be twice the age of his son. The present age of his son is: (in years) 1
(1) 14 (2) 18 (3) 20 (4) 22
10. Sachin is younger than Rahul by 7 years. If their ages are in the respective ratio of 7 : 9, how old is Sachin? (in years) 1
(1) 16 (2) 18 (3) 28 (4) 24.5

P.T.O

11. A fruit seller had some apples. He sells 40% apples and still has 420 apples. How many apples He had originally? 1
(1) 588 (2) 600 (3) 672 (4) 700
12. In the first 10 overs of a cricket game, the run rate was only 3.2. What should be the run rate in the remaining 40 overs to reach the target of 282 runs? 1
(1) 6.25 (2) 6.5 (3) 6.75 (4) 7
13. The average weight of A, B and C is 45 kg. If the average weight of A & B be 40 kg and that of B and C be 43 kg, then the weight of B is: (in kg) 1
(1) 17 (2) 20 (3) 26 (4) 31
14. To fill a tank, 25 buckets of water is required. How many buckets of water will be required to fill the same tank if the capacity of the bucket is reduced to two-fifth of its present? 1
(1) 10 (2) 35 (3) 62.5 (4) None of these
15. A man has some hens and cows. If the number of heads be 48 and the number of feet equals 140, The number of hens will be. 1
(1) 22 (2) 23 (3) 24 (4) 26
16. Three candidates contested an election and received 1136, 7636 and 11628 votes respectively. What percentage of the total votes did the winning candidate get? 1
(1) 57% (2) 60% (3) 65% (4) 90%
17. A vendor bought 6 toffees for a rupee. How many for a rupee must he sell to gain 20%? 1
(1) 3 (2) 4 (3) 5 (4) 6
18. Ram purchased 20 dozens of toys at the rate of Rs.375 per dozen. He sold each one of them at the rate of Rs. 33. What was the percentage profit? 1
(1) 3.5 (2) 4.5 (3) 5.6 (4) 6.5
19. A can do a work in 15 days & B in 20 days. If they work on it together for 4 days, then the fraction of the work that is left is: 1
(1) $\frac{1}{4}$ (2) $\frac{1}{10}$ (3) $\frac{7}{15}$ (4) $\frac{8}{15}$
20. A sum of money is to be distributed among A, B, C, D in the proportion of 5 : 2 : 4 : 3. If C gets Rs.1000 more than D, what is B's share? (in Rs.) 1
(1) 500 (2) 1500 (3) 2000 (4) 2500

SECTION- B

Marks

Direction for Questions: 1 – 5 : Read the passage and choose the most appropriate option.

The 543 elected MPs will be elected from Single- member constituencies using first-past-the-post voting. The President of India nominates an additional two members from the Anglo- Indian Community if he believes the community is under- represented.

Eligible voters must be Indian citizens, 18 or older, an ordinary resident of the Polling area of the constituency and possess a valid voter identification card issued by the Election Commission of India. Some people convicted of electoral or other offences are barred from voting.

Earlier there were speculations that the Modi Government might advance the 2019 general election to counter the anti-incumbency factor, however learning from its past blunder of preponing election made by the Vajpayee Government if decided to go into election as per the normal schedule which was announced by Election Commission of India (ECI) on 10 March 2019, after which Model code of conduct was applied with immediate effect.

- Q.1. Which word or phrase means ‘dis-approval of current political office holders in the passage. 1
- 1) First-past-the-past.
 - 2) Blunder.
 - 3) Anti-incumbency.
 - 4) Model code of conduct.
- Q.2. Since when was the Model code of conduct applied with immediate effect? 1
- 1) 23rd May 2018.
 - 2) 10th March 2019.
 - 3) 10th March 2018.
 - 4) 11th March 2019.
- Q.3. When does the President of India nominate an additional two members from the Anglo-Indian community? 1
- 1) When there are less than 543 elected MPs.
 - 2) When the Anglo-Indian Community fails to send a representative.
 - 3) When the President believes that the Anglo-Indian Community is over-represented.
 - 4) When the President believes that the Anglo-Indian Community is under-represented.
- Q.4. What are the mandatory requirements to vote in India? 1
- A. Must be an Indian Citizen.
 - B. Must be 18 or older.
 - C. Must have a valid criminal record.
 - D. Must be an ordinary resident of the polling area of the constituency.
 - E. Must possess a valid voters identification card issued by the Election commission of India.

P.T.O

Choose the correct options.

- 1) A, B, C
- 2) B, A, E, D
- 3) B, C, A, D, E
- 4) B, C, D, E

Q.5. What is the apt meaning of "Speculations" as per the passage? 1

- 1) Guess.
- 2) Assumptions.
- 3) Either (1) or (2).
- 4) Both (1) or (2).

6. Choose the word which but expresses the meaning of the given word. 1

STERILE

- 1) Barren. 2) Arid.
- 3) Children. 4) Dry.

Direction for Questions: 7 and 8 : In the following questions choose the word which is the exact opposite of the given words.

7. CONDENSE 1

- 1) Expand. 2) Distribute.
- 3) Interpret. 4) Lengthen

8. ANNOY 1

- 1) Praise. 2) Rejoice.
- 3) Please. 4) Reward.

9. Find the meaning of Idioms and Phrasal verb given below. 1

To Set One's face against

- 1) To oppose with determination
- 2) To judge by appearance
- 3) To look at one steadily
- 4) To get out of difficulty

10. One morning Udai and Vishal were talking to each other face to face at a crossing. If Vishal's shadow was exactly to the left of Udai, which direction was Udai facing? 1

- (1) East (2) West (3) North (4) South

11. If South- East becomes North, North-East becomes west and so on. Which will West become? 1

- (1) North-East (2) North-West
- (3) South-East (4) South-West

12. Mohan started from his house towards North. After covering a distance of 8 Km, he turned towards left and covered a distance of 6 km. What is the shortest distance now from his house 1

- (1) 10 Km (2) 16 Km (3) 14 Km (4) 2 Km

P.T.O

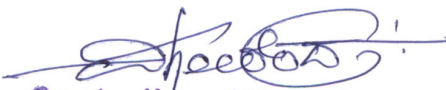
13. Introducing a man, a woman said, His wife is the only daughter of my mother. How is the woman related to that man? 1
 (1) Aunt (2) Wife (3) Mother-In-Law (4) Sister
14. S is Mother of T, T is husband of J, N is son of J, Z is father-in-law of J, K is brother of N. How is K related to Z? 1
 (1) Son (2) Brother (3) Nephew (4) Grandson
15. Find the missing number in the series. 1
 53, 53, 40, 40, 27, 27, ?
 (1) 12 (2) 14 (3) 27 (4) 53

Direction for Questions: 16 – 20 :

P, Q, R, S, T, U, V and W are sitting around a circular table facing the centre:

- a) P is second to the right of T, who is the neighbor of R and V.
 b) S is not the neighbour of P.
 c) V is the neighbour of U.
 d) Q is not between S and W. W is not between U and S. Q is just opposite to R.
16. Which two of the following are not neighbours? 1
 (1) RT (2) UV (3) RP (4) QW
17. Who amongst the following is sitting exactly between T and U? 1
 (1) S (2) Q (3) P (4) V
18. Which of the following group represents neighbors of Q? 1
 (1) SW (2) WT (3) US (4) None of these
19. Who is second to the left of T? 1
 (1) P (2) S (3) U (4) R
20. Who is third to the right of U? 1
 (1) T (2) Q (3) R (4) P

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P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS
B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: ELECTRONICS

Course Name: Analog and Digital Electronics

Course Code: 121DSCC02T-II-22

Semester: II

Duration: 2Hours 30 Minutes

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No.

(2) Draw the diagrams wherever necessary

UNIT-I

Marks

- | | | |
|----|--|---|
| a) | What is FET? Mention its types. | 2 |
| b) | Give the difference between BJT & FET. | 5 |
| c) | Explain the construction, working and characteristics of P-MOSFET. | 8 |

OR

- | | | |
|-------|--|---|
| 2. a) | Sketch the circuit symbol of TRIAC and DIAC. | 2 |
| b) | With neat circuit diagram explain the construction and working of SCR. | 5 |
| c) | With neat diagram explain UJT as relaxation oscillator and hence obtain the expression for frequency of oscillation. | 8 |

UNIT-II

- | | | |
|-------|---|---|
| 3. a) | What is op- amp? | 2 |
| b) | Explain the block diagram of op- amp. | 5 |
| c) | Explain the application of op- amp as summing, scaling and averaging amplifier. | 8 |

OR

- | | | |
|-------|--|---|
| 4. a) | Define the term: 1) CMRR 2) Slew rate. | 2 |
| b) | Explain the application of op- amp as differentiator. | 5 |
| c) | Obtain the expression for closed loop gain in inverting and non inverting amplifier. | 8 |

UNIT-III

- | | | |
|-------|--|---|
| 5. a) | Simplify $y = AB + A\bar{B}$. | 2 |
| b) | Explain 4:1 multiplexer. | 5 |
| c) | With neat logic diagram parallel binary counter. | 8 |

OR


- | | | |
|-------|---|---|
| 6. a) | What is encoder? Draw the block diagram of 4:2 encoder. | 2 |
| b) | With neat logic diagram explain full- subtractor. | 5 |
| c) | Explain the various steps involved in solving K- map. | 8 |

UNIT-IV

- | | | |
|----|---|---|
| a) | What is sequential logic circuit? | 2 |
| b) | With neat logical diagram explain RS- Flip- Flop. | 5 |
| c) | Explain JK flip- flop with timing diagram. | 8 |

OR

- | | | |
|-------|---|---|
| 8. a) | What is counter? Mention its types. | 2 |
| b) | With neat diagram explain two bit binary counter. | 5 |
| c) | Explain MOD-8 counter. | 8 |


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**P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS**

B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: ELECTRONICS

Semester: II

Course Name: Basic Electronics- II

Duration: 2Hours 30 Minutes

Course Code: 121OEC02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No. (2) Draw the diagrams wherever necessary

UNIT-I

Marks

1. a) What is an atom? 2
- b) Write a note on Bohr's atomic model. 5
- c) Explain the energy bands in Conductor, Insulators and semiconductors. 8

OR

2. a) What is intrinsic Semiconductor? 2
- b) Write a note on Semiconductor diode. 5
- c) With neat diagram explain energy bands in conductor, insulator and Semiconductor. 8

UNIT-II

3. a) What is rectifier? Mention its types. 2
- b) Explain half wave rectifier. 5
- c) Derive an expression for efficiency of rectification in full wave rectifier. 8

OR

4. a) Draw circuit diagram of half wave rectifier and input output wave forms. 2
- b) Explain full wave rectifier. 5
- c) Derive an expression for efficiency of rectification in half wave rectifier. 8

UNIT-III

5. a) List the parts of power supply. 2
- b) With neat diagram explain Step- up transformer. 5
- c) With neat diagram explain Zener diode as voltage regulator. 8

OR

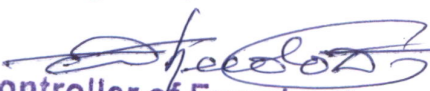
6. a) What is filter circuit? 2
- b) What is transformer? Explain step down transformer. 5
- c) With neat diagram explain LC and CLC filters. 8

UNIT-IV

7. a) What is extrinsic Semiconductor? 2
- b) With neat diagram explain full wave bridge rectifier. 5
- c) Explain construction working of N- type and P- type Semiconductors. 8

OR

8. a) Define ripple factor. 2
- b) Explain the structure of an atom. 5
- c) With neat diagram explain series inductor and shunt capacitor filter. 8



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AUTONOMOUS
B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: ENGLISH

Semester: II

Course Name: GLORIOUS ENGLISH- II

Duration: 2Hours 30 Minutes

Course Code: 113ENG02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No. (2) Write the question number as printed in question paper

UNIT-I

Marks

1. a) Find out which part of the sentence has an error and rewrite the sentence. 2
1. You should tell to me exactly what happened there.
 2. She prefers chocolate milkshake than Vanilla Ice- cream.
- b) Write an essay on 'Azadi Ka Amrit Mahotsav' 5
- c) The poem 'Gandhi' is written from the perspective of Mahatma Gandhi during India's freedom struggle. Discuss. 8

OR

2. a) Rewrite the following sentences correcting the mistakes. 2
1. My friend has retired last month.
 2. There is no alternative for knowledge acquisition.
- b) Write a letter to the HDMC, Hubballi complaining about the irregular water supply in your locality. 5
- c) Write the critical analysis of the poem 'The World is Too Much With Us'. 8

UNIT-II

3. a) Use appropriate question tag to the following sentences. 2
1. They submitted the assignments.
 2. She is not punctual to the class.
- b) Prepare the resume for the post of a Chemist in a reputed Pharmaceutical industry. 5
- c) Examine the theme of the poem, "Prayer Before Birth". 8

OR

4. a) Use appropriate question tags to the following sentences. 2
1. She speaks English very fluently.
 2. They don't come here everyday
- b) Explain the types of paragraphs.. 5
- c) Explain the significance of the poem 'The World is Too Much With Us'. 8

UNIT-III

5. a) Change the degree of the following sentences. 2
1. She is an intelligent as her sister.
 2. Gold is heavier than Silver
- b) Write a note on the nature of reading. 5
- c) Describe the character of an Astrologer. 8

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OR

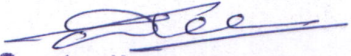
6. a) Change the degrees of the following sentences. 2
1. Rama was as brave as Ravana.
2. He is not so generous as his brother.
b) Explain the types of reading. 5
c) Narrate the sad story of Rahim Khan as represented in the story 'Sparrows'. 8

UNIT-IV

7. a) Frame question to get underlined word as answer. 2
1. He will be flying a kite.
2. She spoke in a polite way.
b) Explain the significance of reading. 5
c) Explain author's views on the function of education with reference to "The Function of Education" 8

OR

8. a) Frame question to get underlined word as answer. 2
1. The examination will begin in 30 days.
2. He told me everything.
b) Write a note on techniques of reading comprehension. 5
c) Discuss theme of deception, revenge and irony of life in the story 'An Astrologer's Day'. 8


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P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS

B.Sc. II SEMESTER END EXAMINATION AUG/ SEPT- 2022

Course Name: ENVIRONMENT STUDIES
Course Code: 129-ENV-01T

Semester: II
Duration: 1Hours 30 Minutes
Max Marks: 30

Instructions to Candidates: Answer any 30 questions from the given 40 questions.

1. Mention the abiotic factors of Ecosystem.
 - a) Temperature
 - b) Rainfall and Seasons
 - c) Ocean current
 - d) All these factors

2. Environment, Modified by human activities is called.
 - a) Modern environment
 - b) Noosphere
 - c) Urban environment
 - d) Anthropogenic environment

3. The layer of water on the surface of the Earth is called.
 - a) Hydrosphere
 - b) Lithosphere
 - c) Atmosphere
 - d) All these

4. All External factor that affects the Organism are:
 - a) Politics
 - b) Culture
 - c) Environment
 - d) None of these

5. The important sphere which absorbs the UV radiation is:
 - a) Ecosphere
 - b) Ionosphere
 - c) Stratosphere
 - d) Biosphere

6. The English word Environment is originated from:
 - a) Latin
 - b) Greek
 - c) French
 - d) None of these

7. Environment Study deals with :
 - a) Plants
 - b) Animals
 - c) Microbes
 - d) Natural world

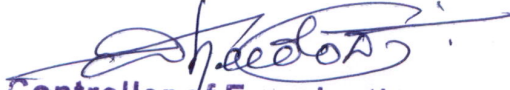
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8. The term Ecology was coined by:
 - a) Mishra
 - b) Earnest Hacckel
 - c) Tansley
 - d) Odum
9. Soil Erosion or Loss of Top soil is caused by:
 - a) Agriculture
 - b) Deforestation
 - c) Drought & food
 - d) Both B & C
10. Environment Study is helpful in:
 - a) Management of all Environmental a sets Judiciously
 - b) In Management of all resources
 - c) In achieving sustainable development
 - d) For all these reasons
11. Which of the following is not true about deforestation?
 - a) Population explosion is one reason for deforestation
 - b) Clearing of forest for agriculture causes deforestation
 - c) Deforestation is taking place only in developing countries
 - d) Cash crop economy of third world is case of deforestation
12. Planting of trees is called:
 - a) Deforestation
 - b) Aforestation
 - c) Forestation
 - d) None of these
13. Extensive planting of trees helps us in:
 - a) Maintaining balance in ecosystem
 - b) Developing Ecotourism
 - c) Eliminating pressure on natural forest
 - d) All these
14. Major main purpose of most of the dams around the world is:
 - a) Power generation
 - b) Irrigation
 - c) Drinking water supply
 - d) Floods control
15. Soil Erosion can be prevented by:
 - a) Over grazing
 - b) Growing more plants
 - c) Making land slope
 - d) None of these
16. An Ecosystem consists of:
 - a) Green plants and animals
 - b) Green plants and decomposers
 - c) Products and consumers
 - d) Green plants, animals, decomposers, and abiotic environment

17. Biodiversity is the totality of:
- Genes
 - Species
 - Ecosystem
 - All the above
18. Basmati rice is different from sona masori because:
- Genetic diversity
 - Species diversity
 - Alpha diversity
 - None of these
19. Lion and Monkey are different in their appearance because of :
- Genetic diversity
 - Specious diversity
 - Alpha diversity
 - None of these
20. The term biodiversity was coined by:
- E.P. Odum
 - Walter G. Rosen
 - Robert brown
 - A.G. Tansley
21. There are _____ biogeographical regions in India.
- Six
 - Eight
 - Ten
 - None of these
22. India is famous for its.....
- Poor diversity
 - Rich biodiversity
 - Zero diversity
 - None of these
23. Lion- Tailed Macaque is found in:
- Western Ghats
 - Eastern Ghats
 - Caucasus
 - Western Himalayas
24. Passenger pigeon became extinct because of:
- Hunting
 - Introduction of exotic species
 - Habitat loss
 - None of these
25. Which of the following is an extinct species:
- Tiger
 - Dodo
 - Swamp Deer
 - Leopard

26. Which one of the following is an "Indian Hot Spot".
- Deccan Plateau
 - Thar Desert
 - Eastern Himalayas
 - None of these
27. Pollution is caused by:
- Absence of waste management
 - Use of modern means of transportation
 - Use of Pesticide
 - All these
28. Environment pollution adversely affects:
- Ecosystem
 - Food Chain
 - Human health
 - All these
29. PAN is a
- Primary pollutant
 - Secondary pollutant
 - It is not a pollutant
 - None of these
30. DDT is apollutant:
- Biodegradable
 - Non-biodegradable
 - Both (a) and (b)
 - None of these
31. Cholera, Amoebiasis dysentery viral hepatitis, typhoid are:
- Water borne disease
 - Air borne
 - Vector borne
 - All the above
32. Contamination of air with pollutant is called as:
- Air pollution
 - Ecosystem pollution
 - Environment pollution
 - None of these
33. Use of vehicles and burning of fossil fuels results in:
- Acid rain
 - Produce SMOG
 - Adversely affects the human health and creates health disorders
 - All these
34. Acid rain is caused by increase in the atmospheric concentration of:
- Ozone and dust
 - SO₂ and NO₂
 - SO₃ and CO
 - CO₂ and CO

35. Sound becomes hazardous noise pollution atdecibels:
- a) above 30
 - b) above 80
 - c) above 100
 - d) above 120
36. Sound pollution can.....
- a) Destroy auditory nerves
 - b) It can create headache, irritation, lack of sleep
 - c) It can create high blood pressure, peptic ulcers, etc.
 - d) All the above
37. Fresh water available for our use is:
- a) Less than 5% of total water resource
 - b) More than 10% of total water resource
 - c) Less than 1% of total water resource
 - d)
38. Which of the following is a non-point source of water pollution?
- a) Factories
 - b) Sewage treatment plants
 - c) Urban and Sub urban lands
 - d) All these
39. Soil pollution is generally caused by:
- a) Industrial and agricultural waste
 - b) Radioactive waste and acid rain
 - c) Medical waste
 - d) all these
40. The cause of floods are.....
- a) Blocking of free flow of rivers
 - b) Melting of Snow
 - c) Distraction of Forest in upper catchment areas
 - d) all these


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**P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS**

B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: HINDI

Semester: II

Course Name: आधुनिक काव्य और निबंध

Duration: 2Hours 30 Minutes

Course Code: 114HIN02T-II-22

Max Marks: 60

**Question. INSTRUCTIONS: (1) आधुनिक काव्य कौमुदि
No. (2) निबंध**

UNIT-I

Marks

1. a) रामनरेश त्रिपाठी जी का परिचय लिखिए । 2
- b) कवि जिवन संदेश मे दुःख का किस तरह विश्लेषण किया है । 5
- c) कवि कर्तव्य के बारे मे क्या कहा है । 8

OR

2. a) दिनकर जी का जीवन परिचय लिखिए । 2
- b) किसान इस सिंहासन का राजा होगा विश्लेषण किजिए । 5
- c) जनतंत्र का जन्म मे जनता के बारे मे कवि का विचार लिखिए । 8

UNIT-II

3. a) शिवमंगल सिंह सुमन जी का जीवन परिचय लिखिए । 2
- b) कवि के अनुसार जीवन का लक्ष क्या है । 5
- c) 'वरदान मांगूंग नहि' कविता का विवरण किजिए । 8

OR

4. a) सुमित्रानंदन पंत जी का जीवन परिचय लिखिए । 2
- b) मैं नहि चाहता चिर सुख का विश्लेषण किजिए । 5
- c) पंत जी ने 'मैं नहि चाहता चिर सुख' कविता मे क्या संदेश दिया है । 8

UNIT-III

5. a) निबंध का अर्थ लिखिए । 2
- b) कंप्यूटर का महत्व लिखिए । 5
- c) आत्मनिर्भर भारत पर निबंध लिखिए । 8

OR

6. a) निबंध की परिभाषा लिखिए । 2
- b) ग्रीन हाँउस (Green House) पर निबंध लिखिए । 5
- c) बेटी बचाओ बेटी पढाओ - पर निबंध लिखिए । 8

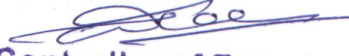
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UNIT-IV

7. a) निबंध किंव्याख्या किजिए । 2
b) प्रदूषणा पर निबंधा लिखिए । 5
c) करोना महामारी पर निबंध लिखिए । 8

OR

8. a) निबंध की प्रकारों को लिखिए । 2
b) नोटबंधी (Demonitization) । 5
c) लाकडाऊन (Lockdown) के प्रयोजन और दुष्परीणम पर निबंध लिखिए । 8


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**P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS**

B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: KANNADA

Semester: II

Course Name: ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯ- ವರದಾ-2

Duration: 2Hours 30 Minutes

Course Code: 111KAN02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ಸಂಪೂರ್ಣವಾಗಿ ಬೇಕಾದ ನಾಲ್ಕು ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

No.

(2) ಬರಹ ಮತ್ತು ಭಾಷಾ ಶುದ್ಧತೆಗೆ ಹೆಚ್ಚಿನ ಆಧ್ಯತೆ ನೀಡಲಾಗುವುದು

UNIT-I

Marks

1. ಅ) ಬೆಳೆಗೆರೆ ಕೃಷ್ಣಶಾಸ್ತ್ರಿಯವರು ಜನಿಸಿದ ವರ್ಷ ಯಾವುದು ಮತ್ತು ಅವರ ಪ್ರಮುಖ ಕೃತಿಗಳು ಯಾವುವು? 2
- ಬ) ದೇವನೂರು ಮಹಾದೇವ ಅವರ ಸಾಹಿತ್ಯಿಕ ಸಾಧನೆ ಕುರಿತು ಬರೆಯಿರಿ. 5
- ಕ) 'ನಿಮ್ಮ ಪಾದದಿಂದ ನನ್ನ ತಲೆಯನ್ನು ಮೆಟ್ಟಿಬಿಡಿ ನನ್ನ ಅಹಂಕಾರ ಅಳಿಯಲಿ' ಲೇಖನದ ಪ್ರಮುಖ ಆಶಯವನ್ನು ಕುರಿತು ಬರೆಯಿರಿ. 8

OR

2. ಅ) ವಚನ ಎಂದರೇನು? ವ್ಯಾಖ್ಯಾನಗಳ ಸಹಿತ ವಿವರಿಸಿ. 2
- ಬ) ಅಕ್ಕ ಮಹಾದೇವಿಯ ಒಟ್ಟು ವಚನಗಳ ಆಶಯವನ್ನು ಕುರಿತು ಬರೆಯಿರಿ. 8
- ಕ) ಮುಪ್ಪಿನ ಷಡಕ್ಷರಿ ಕವಿಯ ಪರಿಚಯವನ್ನು ಕುರಿತು ಬರೆಯಿರಿ. 5

UNIT-II

3. ಅ) ಮುಪ್ಪಿನ ಷಡಕ್ಷರಿಯವರ ಕಾಲ ಯಾವುದು ಮತ್ತು ಅವರ ಪ್ರಮುಖ ಕೃತಿಗಳನ್ನು ಹೆಸರಿಸಿ. 2
- ಬ) ಅಕ್ಕ ಮಹಾದೇವಿಯವರ ಪರಿಚಯವನ್ನು ಕುರಿತು ಬರೆಯಿರಿ. 5
- ಕ) ಧಾರವಾಡದಲ್ಲಿ ಮಳೆಗಾಲ ಕವನವು ಯಾವ ಮುಖ್ಯ ಆಶಯವನ್ನು ಒಳಗೊಂಡಿದೆ? ವಿಶ್ಲೇಷಿಸಿರಿ. 8

OR

4. ಅ) ಎ. ಎನ್. ಮೂರ್ತಿರಾವ್‌ರವರ ಪಂಪ ಪ್ರಶಸ್ತಿ ವಿಜೇತ ಕೃತಿ ಯಾವುದು? ಮತ್ತು ಅವರು ಮರಣ ಹೊಂದಿದ ವರ್ಷ ಯಾವುದು? 2
- ಬ) ಭಾರತಿ ಬಿ.ವಿ.ಲೇಖಕರ ಕುರಿತು ಬರೆಯಿರಿ. 5
- ಕ) ಸಾಸುವೆ ತಂದವಳು ಆತ್ಮಕತೆಯ ಭಾಗವಾದ 'ಲವ್‌ಯೂ ಜಿಂದಗಿಯ ಪ್ರಮುಖ ಆಶಯವೇನು? 8

UNIT-III

5. ಅ) ಡಾ. ಚನ್ನವೀರ ಕಣವಿಯವರ ಬಿರುದು ಯಾವುದು? ಹಾಗೂ ಅವರು ಎಲ್ಲಿ ಮತ್ತು ಯಾವ ವರ್ಷ ಜನಿಸಿದರು. 2
- ಬ) ಡಾ. ಚನ್ನವೀರ ಕಣವಿಯವರ ಸಾಹಿತ್ಯಿಕ ಸಾಧನೆಗಳನ್ನು ಕುರಿತು ಬರೆಯಿರಿ. 5
- ಕ) 'ಮಳೆ ಬರಲಿ ಲೋಕದ ಎಲ್ಲರ ಮನೆಯ ಮೇಲೆ' ಕವನದ ಸ್ವಾರಸ್ಯವನ್ನು ವಿವರಿಸಿರಿ. 8

P.T.O

OR


6. ಅ) ಡಾ.ಯು.ಆರ್. ಅನಂತಮೂರ್ತಿಯವರಿಗೆ ದೊರೆತ ಪ್ರಶಸ್ತಿಗಳು ಯಾವುವು? 2
ಬ) ಸುಬ್ಬು ಹೊಲೆಯಾರ ಕವಿಯ ಸಾಹಿತ್ಯಿಕ ಸಾಧನೆಗಳನ್ನು ಕುರಿತು ಬರೆಯಿರಿ. 5
ಕ) ಮತ್ತೆ ಮಳೆ ಹುಯ್ಯುತ್ತಿದೆ ಕವನದ ಮುಖ್ಯ ಆಶಯವೇನು? ಚರ್ಚಿಸಿರಿ. 8

UNIT-IV

7. ಅ) ಸಿದ್ಧಯ್ಯ ಪುರಾಣಿಕರ ತಾಯಿ- ತಂದೆಯರ ಹೆಸರೇನು ಹಾಗೂ ಅವರಿಗೆ ದೊರೆತ ಪ್ರಮುಖ ಪ್ರಶಸ್ತಿಗಳು ಯಾವುವು? 2
ಬ) ಡಾ. ಸಿದ್ಧಯ್ಯ ಪುರಾಣಿಕರ ಸಾಹಿತ್ಯಿಕ ಸಾಧನೆಗಳನ್ನು ಕುರಿತು ವಿವರಿಸಿ. 5
ಕ) ವಿದ್ಯೆ ಬಂತು ವಿನಯ ಹೋಯ್ತು ಮೂರು ವಚನಗಳ ಸ್ವಾರಸ್ಯ ಬರೆಯಿರಿ. 8

OR

8. ಅ) ಶಿವರಾಮ ಕಾರಂತರ ಮುಖ್ಯ ಕೃತಿಗಳು ಯಾವುವು? ಮತ್ತು ಅವರಿಗೆ ದೊರೆತ ಪ್ರಶಸ್ತಿಗಳು ಯಾವುವು? 2
ಬ) ಸಿರಿಯು ಕನಸಿನಂತೆ- ಈ ಭೋಗ ಪಟ್ಟಿದಿಯ ಪ್ರಮುಖ ಆಶಯವನ್ನು ವಿಶ್ಲೇಷಿಸಿರಿ. 5
ಕ) ಚೋಮನ ದುಡಿ ಕಾದಂಬರಿಯ ಮುಖ್ಯ ಆಶಯವನ್ನು ಕುರಿತು ವಿಮರ್ಶಾತ್ಮಕವಾಗಿ ಬರೆಯಿರಿ. 8


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Reg. No

**P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS**

B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: MATHEMATICS

Semester: II

Course Name: Algebra- II & Calculus- II

Duration: 2Hours 30 Minutes

Course Code: 117DSCC02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No.

UNIT-I

Marks

1. a) Interpret Equivalent set with an example. 2
- b) Prove that every infinite set has a countable subset. 5
- c) i) Prove that the union of a finite set and a countable set is a countable set. 8
- ii) Prove that $A \cup B$ is finite set if A and B are finite sets.

OR

2. a) Interpret universal sets with an example. 2
- b) Prove that every subset of a countable set is countable. 5
- c) i) If x is a positive real number and y is any real number, then there exist a positive integer n, prove that $nx > y, \forall x, y \in \mathbb{R}$. 8
- ii) Prove that the set of all positive rational numbers is countable.

UNIT-II

3. a) Interpret subgroup and give an example. 2
- b) Prove that every cyclic group is abelian but the converse is not necessarily true. 5
- c) i) State and prove Lagrange's theorem. 8
- ii) Find all the right cosets of the subgroup $A = \{\alpha_0, \beta_1\}$ of the group S_3 .

OR

4. a) List any two properties of groups. 2
- b) State and prove Fermat's theorem. 5
- c) i) State and prove Euler's theorem. 8
- ii) If $G = \{1, -1, i, -i\}$ is a group, then show that G is a cyclic group

UNIT-III

5. a) If $x = r\cos\theta$ and $y = r\sin\theta$, then find $\frac{\partial(x,y)}{\partial(r,\theta)}$. 2
- b) State and prove Euler's theorem for the function of two variables. 5
- c) i) Expand the function $f(x, y) = e^x \sin y$ by Maclaurin's form. 8
- ii) Examine the function for extreme values of $f(x, y) = x^2 + y^2 + 6x + 12$.

P.T.O

OR


6. a) If $u = \sin^{-1}\left(\frac{x+y}{\sqrt{x}+\sqrt{y}}\right)$, then show that $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = \frac{1}{2} \tan u$. 2
- b) If u and v are the functions of x, y and x and y are the functions of r, s then prove that 5
- $$\frac{\partial(u,v)}{\partial(r,s)} = \frac{\partial(u,v)}{\partial(x,y)} \times \frac{\partial(x,y)}{\partial(r,s)}$$
- c) i) If $u = f(x - y, y - z, z - x)$, then prove that $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} + \frac{\partial u}{\partial z} = 0$. 8
- ii) State and prove Extension of Euler's theorem.

UNIT-IV

7. a) Evaluate $\int_0^2 \int_0^1 (x^2 + y^2) dx dy$. 2
- b) Evaluate $\int_C (x + y + z) ds$, where C is the line joining the points $(1, 2, 3)$ and $(4, 5, 6)$. 5
- c) i) Evaluate $\int \int_R \int xyz dx dy dz$ over the positive octant of sphere $x^2 + y^2 + z^2 = a^2$ by changing it to spherical polar co-ordinate. 8
- ii) Evaluate $\int_0^\infty \frac{\tan^{-1} ax}{x(1+x^2)} dx$ using the method of differentiation under integral sign.

OR

8. a) Evaluate $\int_0^1 \int_0^2 \int_1^2 xyz^2 dx dy dz$. 2
- b) Evaluate $\int \int_R \frac{x^2 y^2}{x^2 + y^2} dx dy$ where R is the annulus region between the circles, $x^2 + y^2 = 1$ and $x^2 + y^2 = 4$. 5
- c) i) Evaluate $\int_0^a \int_y^a \frac{x dx dy}{x^2 + y^2}$ by changing the order of integration. 8
- ii) Evaluate $\int_C (2x + y) dx + (3y + x) dy$ along the line joining $(0, 1)$ and $(2, 5)$.


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P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS

B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: MATHEMATICS

Course Name: Business Mathematics-II

Course Code: 117OEC02T-II-22

Semester: II

Duration: 2Hours 30 Minute

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.
No.

UNIT-I

Marks

1. a) Interpret Simple Interest and Compound interest. 2
b) A person 'A' invested Rs.300 on CI at a rate of 10% for 2 years and 'B' invested Rs.3200 on a CI at a rate of 15% for 3 years. Find the total CI. 5
c) i) Find the amount and CI on Rs.5000 in 3 years at 8% per annum compounded half yearly. 8
ii) Person 'A' invest Rs. 100 at the end of each year at 5% per annum. How much would he get back at the end of Sixth year.

OR

2. a) List out the factors which depends upon the simple interest. 2
b) How long will Rs.460 taken to yield Rs.21.29, simple interest at 2½ % per annum. 5
c) i) Find the amount of 9,600 at 12% per annum in 4 years payable half yearly. 8
ii) What amount should be set every year to amount to Rs.1,48,970 at the end of fourth year at 5% per annum.

UNIT-II

3. a) Interpret the term Annuity with its types. 2
b) Draw less than ogives and more than ogives to the following frequency distribution. 5

Classes	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	3	8	14	25	15	7	2

- c) i) Calculate the coefficient of correlation between price and supply. 8

Price (per unit)	8	10	15	17	20	22	24	25
Supply (thousand)	25	30	32	35	37	40	42	45

- ii) Explain the significance of regression coefficient.

OR

4. a) Explain the properties of correlation. 2
b) Calculate mode for the following data. 5

CI	below 10	10-12	12-14	14-16	16-18	18 & above
f	3	15	27	20	3	2

- c) A company issued bonds for Rs.8,50,000 and established a sinking fund to retire the debit in 15 years. It made deposits at the end of every 6 months into the fund and fund was earning 3.55% compounded semi annually. 8
- i) Calculate the size of the periodic sinking fund deposit.
- ii) Calculate the sinking fund balance at the end of 11th payment.

UNIT-III

5. a) Interpret Arithmetic Mean with its types. 2
- b) Calculate Harmonic Mean for the following data. 5

x	12	14	16	18	20
f	3	5	9	4	2

- c) The following data refers to the dividend paid by 2 companies A & B over last 5 years. 8

Company A	2	3	5	8	4
Company B	6	3	8	10	7

Calculate the co-efficient of variation and comment.

OR

6. a) Interpret Standard deviation and Variance. 2
- b) The following distribution gives the weight of mangoes. Find its median. 5

Weight	410-419	420-429	430-439	440-449	450-459	460-469	470-479
No. of Mangoes	10	20	42	54	45	18	7

- c) i) Given that Mean = 30.5 for the following distribution. Find the missing frequency. 8

x	10	20	30	40	50
f	8	10	-	15	7

- ii) Calculate the standard deviation for the following distribution.

CI	0-6	6-12	12-18	18-24	24-30	30-36	34-42
f	19	25	36	72	51	43	28

UNIT-IV

7. a) Explain the significance of regression analysis. 2
- b) Calculate the coefficient of correlation between the weights. The following is the weight of mother and their babies at the time of delivery. 5

Mother (kg)	54	60	49	57	68	55	62	60	58
Baby(kg)	3.4	3.2	3.6	4.0	2.4	3.6	4.1	2.5	3.5

- c) a) Explain the distinction between correlation and regression. 8
 b) Calculate the coefficient of correlation of rank correlation for the following table.

Marks in English	36	43	47	28	35	50	40
Marks in Statistics	73	44	35	30	20	36	40

OR

8. a) Explain the Karl Pearson's co-efficient of correlation. 2
 b) Calculate the co-efficient of correlation between x and y by Karl Pearson method. 5

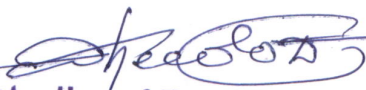
x/y	115	120	125	130
10	-	-	6	11
20	-	2	4	10
30	-	3	1	5
40	3	2	3	1
50	10	4	5	-

- c) i) Evaluate the two regression equations of X on Y and Y on X from the following table. 8

x	10	12	16	11	15	14	20	22
y	15	18	23	14	20	17	25	28

- ii) Calculate the co-efficient of correlation between x and y from the following table.

x	218	220	236	225	220	227	228
y	12.3	12.7	12.0	12.2	12.7	12.1	12.0



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P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS
B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: MICROBIOLOGY

Course Name: Microbial Biochemistry & Physiology

Course Code: 123DSCC02T-II-22

Semester: II


Duration: 2 Hours 30 Minute

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No. (2) Draw the diagrams wherever necessary

	UNIT-I	Marks
1. a) Define Vander Waal Forces.		2
b) Write short note on electrolytes.		5
c) Derive HH equation and write its significance.		8
OR		
2. a) Define buffers.		2
b) Write structure and properties of water.		5
c) Write the significance of buffers in biological system.		8
UNIT-II		
3. a) Define asymmetric carbon atom.		2
b) Write a note on cytochromes.		5
c) Discuss the classification of amino acids.		8
OR		
4. a) Define saturated and unsaturated fats.		2
b) Explain structure and functions of hemoglobin.		5
c) Discuss the classification of carbohydrates.		8
UNIT-III		
5. a) Define chemostat and turbidostat.		2
b) Explain active transport.		5
c) Discuss measurement of microbial cells.		8
OR		
6. a) Define synchronous growth.		2
b) Explain passive diffusion.		5
c) Discuss the phases of microbial growth.		8
UNIT-IV		
7. a) Define free energy.		2
b) Explain microbial fermentation.		5
c) Explain glycolysis with its bioenergetics.		8
OR		
8. a) Define redox reaction.		2
b) Explain inhibitors and uncouplers.		5
c) Explain electron transport chain in prokaryotes.		8


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P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS
B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: MICROBIOLOGY

Semester: II

Course Name: Environmental & Sanitary Microbiology

Duration: 2Hours 30 Minutes

Course Code: 123OEC02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No.

(2) Draw the diagrams wherever necessary

UNIT-I

- | | Marks |
|---|-------|
| 1. a) Give 4 examples of fungi found in soil. | 2 |
| b) Discuss the unfavourable conditions for micro-organisms in soil. | 5 |
| c) Explain distribution of micro-organisms in soil and air. | 8 |

OR

- | | |
|--|---|
| 2. a) Define Biotic and Abiotic Components. | 2 |
| b) Explain about blue- green algae and protozoa. | 5 |
| c) Explain Types, Properties and uses of soil and air. | 8 |

UNIT-II

- | | |
|--|---|
| 3. a) Define bio indicators. | 2 |
| b) Explain any two microbes which are present in contaminated water. | 5 |
| c) Discuss the standard qualities of drinking water. | 8 |

OR

- | | |
|--|---|
| 4. a) Name any two water borne diseases. | 2 |
| b) Explain properties and uses of water. | 5 |
| c) Explain different steps involved in water purification. | 8 |

UNIT-III

- | | |
|---|---|
| 5. a) Define Communicable diseases. | 2 |
| b) Write a short note on food borne diseases. | 5 |
| c) Explain Survey and Surveillance of Microbial infections. | 8 |

OR

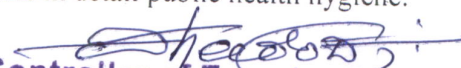
- | | |
|---|---|
| 6. a) What is Airbone diseases? Give two examples. | 2 |
| b) Explain airborne diseases. | 5 |
| c) Describe detection and control of good borne infections. | 8 |

UNIT-IV

- | | |
|--|---|
| 7. a) Define water microbiology. | 2 |
| b) Write short note on protozoa and viruses found in soil. | 5 |
| c) Explain soil profile with its microbial content. | 8 |

OR

- | | |
|--|---|
| 8. a) Expand MPN. | 2 |
| b) Explain the unfavourable conditions in air. | 5 |
| c) Discuss in detail public health hygiene. | 8 |


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**P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS**

B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: PHYSICS

Semester: II

Course Name: Electricity and Magnetism

Duration: 2 Hours 30 Minutes

Course Code: 115DSCC02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No.

(2) Non Programmable Scientific Calculator is permitted

UNIT-I

Marks

1. a) State Gauss law in electrostatics. 2
b) Derive an expression for electric potential due to spherical charge distribution. 5
c) Derive an expression for electric field due to 8
i) Spherical charge distribution
ii) Infinite flat sheet of charges

OR

2. a) What is an electric potential? 2
b) Determine the electric field due to a line charge using Gauss Law. 5
c) Derive an expression for electric potential due to a dipole. 8

UNIT-II

3. a) What is dielectric loss? 2
b) Mention limitations of Clausius- Mosotti equation. 5
c) Define: (i) Electric Polarization (P), (ii) Electric displacement (D) 8
(iii) Electric susceptibility (χ) and (iv) Atomic Polarizability (α). Derive the relation b/w
D, E and P.

OR

4. a) What is dipole? 2
b) Differentiate Polar and non Polar molecule. 5
c) What is polarization? Discuss the types of polarization mechanism. 8

UNIT-III

5. a) State the conditions of dead- beat galvanometer. 2
b) State and explain Bios- Savarts Law. 5
c) (i) What is a series resonant circuit? Arrive the relation of current for a series resonant circuit. 8
(ii) A rectangular coil of dimensional 0.08×0.03 m having 200 turns is placed in a uniform magnetic field of 1.2 Tesla, such that its plane is parallel coil are made perpendicular by passing a current of 5 mA. Calculate the moment of the couple acting on it.

P.T.O

OR


6. a) Define admittance of resonant circuit. 2
b) With necessary theory, describe an experiment to determine high resistance of capacitor using B.G. 5
c) i) Deduce the relation for impedance of a parallel resonant circuit containing R, L, and 'C'. 8
ii) Show $Z_0 = \frac{L}{CR}$ be the impedance at resonance of a RLC parallel resonant circuit, where symbols have their usual meaning.

UNIT-IV

7. a) State Stoke's theorem. 2
b) What are applications of Hard and Soft magnetic material? 5
c) Deduce the electromagnetic wave equation in dielectric medium. 8

OR

8. a) Define divergence of vector field. 2
b) Explain B- H curve. 5
c) Derive Maxwell's equation in differential form. 8


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**P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS**

B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: PHYSICS

Course Name: Climate Science

Course Code: 115OEC02T-II-22

Semester: II

Duration: 2Hours 30 Minute:

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No.

UNIT-I

Marks

- | | |
|--|---|
| 1. a) What are sources and sinks of gases in the atmosphere? | 2 |
| b) Explain weather and climate variables. | 5 |
| c) Explain temperature lapse rate, mass and pressure. | 8 |

OR

- | | |
|--|---|
| 2. a) What are the climate changes effect on us? | 2 |
| b) Explain the latitude effect on climate. | 5 |
| c) Explain the distribution of winds and rainfall over India in summer monsoon season. | 8 |

UNIT-II

- | | |
|---|---|
| 3. a) What is nucleation? | 2 |
| b) Write a note on geostationary satellites. | 5 |
| c) Explain the types of clouds and cloud seeding. | 8 |

OR

- | | |
|---|---|
| 4. a) What is cloud seeding? | 2 |
| b) Write a note on surface weather stations. | 5 |
| c) Explain the measurement of wind speed using cup- anemometer. | 8 |

UNIT-III

- | | |
|--|---|
| 5. a) What is fossil fuel? | 2 |
| b) Explain global climate change. | 5 |
| c) Explain global warming and industrialization. | 8 |

OR

- | | |
|---|---|
| 6. a) What are the conventional energy sources? | 2 |
| b) Explain the deforestation. | 5 |
| c) Explain the enhancement of CO ₂ and other greenhouse gases in the atmosphere. | 8 |

UNIT-IV

- | | |
|---|---|
| 7. a) What are the compositions of the present atmosphere? | 2 |
| b) Explain the working of RADAR network for meteorological information. | 5 |
| c) Explain the variation of monsoon patterns. | 8 |

OR

- | | |
|---|---|
| 8. a) What is distribution of winds? | 2 |
| b) Explain polar orbiting and geostationary satellites. | 5 |
| c) Explain Hurricanes and tornadoes. | 8 |

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P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS
B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: STATISTICS
Course Name: Probability and Distributions
Course Code: 120DSCC02T-II-22

Semester: II
Duration: 2Hours 30 Minute:
Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.
No. (2) Use of Calculator is permitted

UNIT-I

Marks

1. a) Define Conditional probability. 2
- b) In a class 70% are boys, and 30% are girls. 5% of boys, 3% of girls are irregular to the class. What is the probability of a student selected at random is irregular to the classes and what is the probability that the irregular student is a girl. 5
- c) State and prove Bay's theorem of probability. 8

OR

2. a) Define favourable event with an example. 2
- b) If A, B, C are mutually exclusive and independent events. Then show that (AUB) and C are also independent. 5
- c) For any two events A and B, prove that 8
 - i) $P(\bar{A} \cup B) = P(B) - P(A \cap B)$
 - ii) If $B \subset A$, then $P(A \cap \bar{B}) = P(A) - P(B)$

UNIT-II

3. a) Define m.g.f and c.g.f of random variable X. 2
- b) Explain distribution function $F(x)$ and state its properties. 5
- c) If X and Y are two continuous random variable, then P.T. $E(x + y) = E(x) + E(y)$. 8

OR

4. a) Define joint probability density function. 2
- b) If X is a random variable, a & b are constants, then show that 5
 - i) $E(ax + b) = a E(x) + b$
 - ii) $V(ax + b) = a^2 v(x)$
- c) The joint density function of two continuous random variable X and Y is give by 8

$$f(x,y) = \begin{cases} kxy & 0 \leq x \leq 4 \\ & 1 < y < 5 \\ 0 & \text{o.w} \end{cases}$$

Solve: i) K ii) $E(x)$ iii) $E(2x + 3y)$

P.T.O

UNIT-III

5. a) If mean = 6 and variance = 4 in a Binomial distribution. Obtain its parameter. 2
b) Discuss the properties of Normal distribution. 5
c) With usual notations for Binomial distribution. 8

P.T. $\mu_{r+1} = pq \left[nr\mu_{r-1} + \frac{d}{dp} \mu_r \right]$

OR

6. a) If $n = 5, p = 0.7$, obtain mean and variance of Binomial variable. 2
b) Construct the median of Normal distribution. 5
c) With usual notations for a Normal distribution 8


P.T. $\mu_{2r} = 1.3.5 \dots (2r - 1)\sigma^{2r}$

UNIT-IV

7. a) What is R? 2
b) Explain Binomial distribution in R. 5
c) Discuss different types of functions in R. 8

OR

8. a) Show the general format of matrix in R. 2
b) Explain help in R. 5
c) Discuss : i) library ii) t (matrix) iii) summary 8
iv) main v) floor vi) % %
vii) cbind viii) NA & NAN


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AUTONOMOUS

B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: STATISTICS

Semester: II

Course Name: Business Statistics

Duration: 2Hours 30 Minute:

Course Code: 120OEC02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No.

(2) Scientific Calculator are allowed

(3) Statistical tables are provided on request

UNIT-I

- | | Marks | CO | BTL |
|---|-------|----|-----|
| 1. a) Mention any two limitations of statistics. | 2 | 1 | 1 |
| b) Explain Geometric mean and Harmonic mean with its merits and demerits. | 5 | 1 | 3 |
| c) Compute mean, median and mode for the following data. | 8 | 1 | 3 |

CI	0-10	10-20	20-30	30-40	40-50
F	6	11	25	20	4

OR

- | | | | |
|--|---|---|---|
| 2. a) Define mode and give any two demerits of it. | 2 | 1 | 1 |
| b) Compute mean deviation from the following data. | 5 | 1 | 3 |

X	10	15	20	25	30
F	2	6	11	15	4

- | | | | |
|--|---|---|---|
| c) An analysis of monthly wages paid to the workers of two firms A and B belonging to the same industry gives the following results. Find which firm is more consistent in payment of workers. | 8 | 1 | 3 |
|--|---|---|---|

	Firm A	Firm B
No. of Workers	500	600
Average monthly wave	Rs.186	Rs.175
Variance of distribution of wages	Rs.81	Rs.100

UNIT-II

- | | | | |
|--|---|---|---|
| 3. a) Define correlation. | 2 | 2 | 1 |
| b) You are given: $\Sigma x = 130$, $\Sigma y = 200$, $\Sigma xy = 3400$, $\Sigma x^2 = 220$
$\Sigma y^2 = 5500$ and $n = 10$, then find correlation coefficient. | 5 | 2 | 2 |

- | | | | |
|---|---|---|---|
| c) From the following data compute Karl- Pearsons coefficient of correlation and comment on the result. | 8 | 2 | 3 |
|---|---|---|---|

Statistics :	37	45	87	13	36
English :	35	38	42	43	30
Statistics :	43	51	26	41	74
English :	36	45	20	34	64

P.T.O

OR

4. a) Mention various methods of computing correlation. 2 2 1
b) Explain scatter diagram. 5 2 2
c) From the following data: 8 2 3
- | | X Series | Y series |
|------|----------|----------|
| A.M. | 18 | 100 |
| S.D. | 14 | 20 |
- Correlation coefficient $r_{xy} = 0.6$
Find : (i) Most probable value of X if Y = 130
(ii) Most probable value of Y if X = 50

UNIT-III

5. a) Define Index Numbers. 2 3 1
b) Construct the cost of living index numbers. 5 3 2
- | Group | Group index | Expenditure |
|---------------|-------------|-------------|
| Food | 122 | 32% |
| Rent | 140 | 15% |
| Clothing | 112 | 18% |
| Fuel & Light | 116 | 10% |
| Miscellaneous | 106 | 25% |
- c) Write the steps to construct Index numbers. 8 3 3

OR

6. a) Name the different types of Index numbers. 2 3 1
b) Illustrate, why Fisher's Index number is called as Ideal Index number. 5 3 2
c) Calculate Laspeyre's, Paasche's and Fisher's Index numbers from the following data. 8 3 3

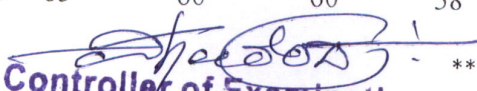
Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
P	2	8	4	8
Q	5	10	6	12
R	3	14	5	15
S	4	18	2	20

UNIT-IV

7. a) What are the components of time series? 2 4 1
b) Calculate 3 yearly moving average for the following time series. 5 4 3
- | | | | | | | | |
|---------|------|------|------|------|------|------|------|
| Years : | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
| Sales : | 70 | 65 | 60 | 75 | 85 | 90 | 80 |
- c) Fit a straight line trend to the following time series and estimate the production of 2017. 8 4 3
- | | | | | | |
|--------------|------|------|------|------|------|
| Year : | 2011 | 2012 | 2013 | 2014 | 2015 |
| Production : | 25 | 28 | 32 | 30 | 36 |

OR

8. a) Define irregular variation. 2 4 1
b) Define seasonal variation and explain any one measure of seasonal variation. 5 4 3
c) Fit a straight line trend to the following data and draw the graph for original data and trend values. 8 4 3
- | | | | | | |
|---------|------|------|------|------|------|
| Year : | 2009 | 2010 | 2011 | 2012 | 2013 |
| Sales : | 65 | 60 | 60 | 58 | 40 |


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Reg. No

**P.C. JABIN SCIENCE COLLEGE, HUBBALLI
AUTONOMOUS**

B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: ZOOLOGY

Semester: II

Course Name: Biochemistry & Physiology

Duration: 2Hours 30 Minutes

Course Code: 119DSCC02T-II-22

Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.

No. (2) Draw neat labelled diagram wherever necessary

UNIT-I

Marks

1. a) Define Metabolism. Mention its type. 2
b) Explain Glycolysis with help of flowchart. 5
c) Explain phosphate pentose pathway in detail. 8

OR

2. a) Define Ketogenesis. Mention the Ketone bodies. 2
b) Explain Kreb cycle with help of flowchart. 5
c) Explain protein metabolism. 8

UNIT-II

3. a) State the Carbohydrates. Mention the types. 2
b) Write a note on mechanism of Enzyme action. 5
c) Write a note on classification of Enzymes and add a note on specificity of enzyme action. 8

OR

4. a) Name the Monosaccharides. 2
b) Write a note on saturated and unsaturated fatty acids with example. 5
c) Write a note on factors affecting rate of Enzymes, Catalysed reactions. 8

UNIT-III

5. a) State the Saliva. Mention its function. 2
b) Write a note on transportation of oxygen. 5
c) Explain the structure of Mammalian heart with neat labelled diagram. 8

OR


6. a) State the Mechanical digestion. 2
b) Write a note on Blood clotting mechanism. 5
c) Write a note of Mechanism of urine formation. 8

UNIT-IV

7. a) Define synapse mention the types. 2
b) Write a note classification of hormones. 5
c) Write a note on origin of action potential and its propagation across the myelinated and non myelinated nerve fibres. 8

OR

8. a) List the hormones secreted by Pituitary glands. 2
b) Explain the thyroid gland with neat labelled diagram. 5
c) Explain pancreas gland with neat labelled diagram and add a note on hormones secreted by pancreas. 8


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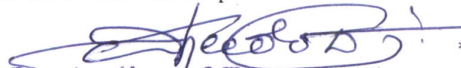
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B.Sc. SEMESTER END EXAMINATION AUG/ SEPT- 2022

Subject: ZOOLOGY
Course Name: Parasitology
Course Code: 119OEC02T-II-22

Semester: II
Duration: 2Hours 30 Minute:
Max Marks: 60

Question. INSTRUCTIONS: (1) ANSWER ANY FOUR FULL QUESTIONS.
No.

UNIT-I		Marks	CO	BT
1. a)	Define parasites.	2	1	1
b)	Explain phoresis with suitable examples.	5	1	2
c)	Explain Mutualism with suitable examples.	8	1	2
OR				
2. a)	Define Zoonosis.	2	1	1
b)	Write any 5 general parasitic adaptations.	5	1	1
c)	Explain Commensalism with suitable examples.	8	1	2
UNIT-II				
3. a)	List the Symptoms of Malaria.	2	2	1
b)	With neat labelled diagram explain Morphology of <i>Schistosoma Haematobium</i> .	5	2	3
c)	With neat labelled diagram explain the life cycle of <i>Fasciolopsis buski</i> .	8	2	3
OR				
4. a)	List the symptoms of Taeniasis.	2	2	1
b)	Write the causative agent, mode of infection, symptoms, control measures and treatment of Hymenol epinosis.	5	2	2
c)	With neat labelled diagram explain life cycle of <i>Plasmodium vivax</i> .	8	2	3
UNIT-III				
5. a)	State the Ascariasis.	2	3	1
b)	With a neat labelled diagram explain the morphology of <i>Ancylostoma duodenale</i> .	5	3	3
c)	With a neat labelled diagram explain the life cycle of <i>Trichinella Spiralis</i> .	8	3	3
OR				
6. a)	List any two parasitic adaptations of Ascaris.	2	3	1
b)	Explain common control measures of mosquitoes.	5	3	2
c)	Explain life cycle of <i>Wuchereria Bancrofti</i> with neat labelled diagram.	8	3	3
UNIT-IV				
7. a)	Expand ELISA and PCR.	2	4	1
b)	Explain advantages and disadvantages of molecular diagnosis.	5	4	2
c)	Write a note on PCR.	8	4	2
OR				
8. a)	State the principles of ELISA.	2	4	1
b)	Write the applications of PCR.	5	4	1
c)	Explain DNA and RNA probes.	8	4	2



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