

CHOICE BASED CREDIT SYSTEM

B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

COMPUTER SCIENCE

Computer Science Theory I

Duration:3 Hours

Max Marks:80

I. Answer any FIVE of the following :

(5×2= 10 Marks)

1. Why NAND and NOR gates are called universal gates?
2. Describe OR gate.
3. State the associative and commutative property of boolean algebra.
4. What is the purpose of 'printf' function? How is it used within a C program?
5. Give an example to initialise structure.
6. What is meant by storage class of a variable?

II. Answer any FIVE of the following :

(5×6= 30 Marks)

7. Map the following expression on Kmap $ABC'+A'B'C'+A'B'C'+AB'C'$.
8. How do you find a complement of a number? Explain ones complement and 2's complement of a number in detail.
9. Explain with example, the various constants available in 'C' language.
10. What is meant by looping? Briefly describe any two forms of looping.
11. What is an union? What is the advantage of union?
12. What are the different methods of outputting strings? Give examples.

III. Answer any FOUR of the following :

(4×10= 40 Marks)

13. Define an array. How to initialize Two-dimensional array? Explain with suitable examples.
14. Convert the following numbers to decimal:
a) $(1011110)_2 =$ b) $(237)_8 =$ c) $(2CD)_{16} =$ d) $(1010)_8 =$

15. Explain the following with syntax and examples:
(a) nested if statement (b) if ladder statement.
16. Explain logical and bitwise operators used in C. Give examples.
17. What is recursion? What are the advantages and disadvantages of recursion?
Write a C program to find the factorial of a given number using recursion.

CHOICE BASED CREDIT SYSTEM**B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024****COMPUTER SCIENCE****Computer Fundamentals and Programming in C****Duration:3 Hours****Max Marks:80****I. Answer any FIVE of the following :****(5×2= 10 Marks)**

1. What is machine language and assembly language?
2. What is a variable? Write a C statement to declare a character variable.
3. What is an array? Write a C statement to declare an array.
4. Write the syntax of if-else statement in C.
5. How do you read string variable in C? Give an example.
6. Define array of structures.

II. Answer any FIVE of the following :**(5×6= 30 Marks)**

7. What are backslash character constants? Write any five with its meaning.
8. Explain the basic structure of C programming language.
9. Explain break and continue statement with syntax and programming example.
10. Explain any two types of loops in C.
11. Explain the concept of union with example .
12. Write the benefits of using pointers in C.

III. Answer any FOUR of the following :**(4×10= 40 Marks)**

13. a) Explain any five characteristics of a computer. b) Explain the components of a computer system with a neat diagram.
14. a) What is a flowchart? Explain any four symbols of flowchart. b) Explain any three benefits and limitations of flowchart.

15. What are the different formatting options for displaying integer numbers and real numbers in C? Explain the various ways to format integer output and real numbers output in C
16. a) What are datatypes? Explain any two with examples. b) What is a variable? With an example, explain how to declare and initialize a variable.
17. What is a string in C? List and explain the various string handling functions in C.

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024
COMPUTER SCIENCE - I

Computer Fundamentals and Programming In C

Duration: 2 Hours**Max Marks: 60**

PART A

Answer any FIVE questions:**(5×2= 10)**

- 1) What is a computer? List any two characteristics of a computer.
- 2) What are C tokens? Give an example.
- 3) Write the syntax of if-else statement in C.
- 4) Give an example to initialize structure.
- 5) Differentiate system software and application software.
- 6) How do you read string variable in C? Give an example.

PART B

Answer any FIVE questions :**(5×6= 30)**

- 7) Write a note on a) Documentation section b) Link Section c) Definition section
- 8) What are numeric constants? Explain its types.
- 9) How do you read elements in one dimensional array? Explain with syntax and example.
- 10) Explain the concept of union with example .
11. Explain getchar() and putchar() function with syntax and example.
12. Explain with syntax and example a) break b) continue

PART C

Answer any TWO questions :**(2×10= 20)**

13. Explain in detail: a) UNICODE b) ASCII
- 14 a) What are datatypes? Explain any two with examples.
b) What is a variable? With an example, explain how to declare and initialize a variable.
15. Explain with syntax and example a) while loop b) do-while loop

6/11/24
Morning

CHOICE BASED CREDIT SYSTEM

B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

MICROBIOLOGY

General Microbiology

Duration:3 Hours

Max Marks:80

I. Answer any FIVE of the following :

(5×2= 10 Marks)

1. Write any two characteristic features of Kingdom Monera.
2. Define Mycology and Virology.
3. What are amplitude and phase objects?
4. What is the working temperature, time and pressure of an autoclave?
5. Define solid media. Give an example.
6. Define enriched media with an example.

II. Answer any FIVE of the following :

(5×6= 30 Marks)

7. Write a note on the Taxonomic groups.
8. Write a note on Intuitive method and Numerical Taxonomy as a method used for the classification of microorganisms.
9. Explain the procedure for Acid Fast staining.
10. Write a note on Scanning Electron microscope.
11. Explain serial dilution and streak plate method.
12. Write a note on cultivation of anaerobic organisms.

III. Answer any FOUR of the following :

(4×10= 40 Marks)

13. Describe in detail the discovery of Penicillin.
14. Give an historical account of Microbiology.
15. Explain the parts and principle of Dark field microscope.
16. Explain the principle and procedure of capsule staining.
17. Explain in detail about preservation of microbes by lyophilization and liquid nitrogen.

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024
MICROBIOLOGY

Microorganisms for Human Welfare

Duration:2 Hours

Max Marks:60

SECTION - A

Answer the following strictly observing the internal choice provided:

4×5=20

UNIT 1

- 1) List the types of food that will help improve the gut bacteria.

OR

- 2) List the nutritional value of Prebiotics.

UNIT 2

- 3) Write briefly on the mechanism of how the biofertilizers work.

OR

- 4) Write briefly about Ectomycorrhiza.

UNIT 3

- 5) Classify antibiotics based on the mode of action.

OR

- 6) What are antimicrobial drugs? Give examples.

UNIT 4

- 7) List different types of dairy products.

OR

- 8) List the requirements needed to grow mushrooms.

SECTION - B

Answer the following strictly observing the internal choice provided:

4×10=40

UNIT 1

- 9) Write a detailed note on Curd.

OR

- 10) Explain in detail production of Red Wine.

UNIT 2

11) Explain in detail the fixed dome type biogas plant.

OR

12) Write about the characteristics of an ideal biopesticide. Add a note on Bacterial pesticides.

UNIT 3

13) Describe the mode of action of Penicillin and Tetracycline.

OR

14) Describe the factors related to antimicrobial agent affecting antimicrobial control.

UNIT 4

15) Describe the properties of vaccines in detail.

OR

16) Explain the production of Fermented coffee in detail and add a note on its significance.

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

MICROBIOLOGY
Microbiology Theory - I

Duration:2 Hours

Max Marks:60

SECTION - A

Answer the following strictly observing the internal choice provided:

4×5=20

UNIT 1

- 1) Write a short note on Coacervates and Microspheres.

OR

- 2) Write a note on Biogenesis.

UNIT 2

- 3) Explain the principle of Acid- fast staining.

OR

- 4) Write a short note on slant culture.

UNIT 3

- 5) Write a short note on motility in bacteria.

OR

- 6) Write a note on prokaryotic cytoskeleton.

UNIT 4

- 7) Write a short note on asexual reproduction in fungi.

OR

- 8) List the functions of eukaryotic cytoskeleton

SECTION - B

Answer the following strictly observing the internal choice provided:

4×10=40

UNIT 1

- 9) Give a detailed account on the contributions of Anton Von Leeuwenhoek, Sargel Winogradsky, Elei Metchnikoff in the field of Microbiology.

OR

- 10) Explain the working principle and construction of compound microscope.

UNIT 2

- 11) How microorganisms can be preserved using Liquid Nitrogen? Add a note on its advantages.

OR

- 12) Define Disinfection. Explain the uses of chemical agents in sterilization.

UNIT 3

- 13) Define transduction and explain the process with a neat labelled diagram.

OR

- 14) Describe chemical composition of Bacterial cell wall.

UNIT 4

- 15) Explain the chemical composition of eukaryotic cell membrane.

OR

- 16) Describe the structure and function of chloroplasts in eukaryotes.

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

PHYSICS

Mathematical Physics, Properties of Materials and Relativity

Duration:3 Hours

Max Marks:80

Part A

Answer any seven questions:

(7×10= 70)

1. a) Define surface integral and volume integral of a vector.
 b) Obtain expressions for radial and transverse velocity & accelerations of a particle. (3 + 7)
2. a) If $\vec{A} = 4\vec{i} - 2\vec{j} + 4\vec{k}$ and $\vec{B} = 3\vec{i} - 6\vec{j} - 2\vec{k}$, find magnitude of \vec{A} and magnitude of \vec{B} . Find $|\vec{A} \cdot \vec{B}|$.
 b) Explain with examples dot product and cross product of vectors. (3 + 7)
3. a) What is average velocity and average acceleration of a moving body? Give the mathematical representation of the same.
 b) Deduce the expression for derivative of i) $\vec{A} + \vec{B}$ ii) $\vec{A} - \vec{B}$
 iii) $\vec{A} \times \vec{B}$ iv) $\vec{A} \cdot \vec{B}$. (3 + 7)
4. a) Define Poisson's ratio. What is Poisson's ratio if longitudinal strain is 14 and lateral strain is 3.5?
 b) Obtain the relation between the three elastic moduli in the case of an isotropic solid. (3 + 7)
5. a) Derive the relation between surface tension and surface energy.
 b) Derive the general expression for the excess of pressure due to surface tension inside a liquid surface. (3 + 7)
6. a) What is torsion? Explain with example.
 b) What is a torsional pendulum? Derive an expression for the period of oscillations of a torsion pendulum assuming the expression for couple per unit twist. (3 + 7)
7. a) Show that Lorentz transformations reduce to Galilean transformations when $v \ll c$.
 b) State the basic postulates of special theory of relativity and hence obtain Lorentz transformation formulae. (3+7)

6/11/14
20

- 8. a) How does mass vary with velocity?
b) Write a note on gravitational red shift. (3+7)
- 9. a) Write a note on Galilean transformation of position and acceleration.
b) What is meant by Galilean transformation and Galilean invariance? Show that length and acceleration is invariant to Galilean transformation, velocity is not. (3+7)

Part B

Answer any two questions: (2×5= 10)

- 10. Find the unit vector parallel to the resultant vector.
 $r_1 = 3\hat{i} + 4\hat{j} + 5\hat{k}, r_2 = 2\hat{i} + 4\hat{j} + 6\hat{k}.$
- 11. What would be the pressure inside a small air bubble of 0.2 mm radius just below the surface of water. Surface tension of water= 0.072 N/m and atmospheric pressure is 10^5 Pa.
- 12. i) A photon is travelling east and another photon is travelling west. Find the relative velocity of the two photons.
 (ii) An electron is moving with a speed of 0.85c in a direction opposite to that of a moving photon. Calculate the relative velocity of the electron with respect to the photon.

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

PHYSICS

Mechanics and Properties of Matter

Duration: 2 Hours

Max Marks:60

PART - A

Answer any five questions, selecting minimum of one question from every unit: 5×9=45

UNIT I

- 1 a) Define uniform circular motion.
b) State the basic postulates of special theory of relativity and hence obtain Lorentz transformation equations. **(2+7)**
- 2 a) Explain the physical significance of Einstein mass-energy relationship.
b) What is meant by Galilean transformation and Galilean invariance? Show that length and acceleration are invariant to Galilean transformation, velocity is not. **(2+7)**

UNIT II

- 3 a) Derive the expression for angular momentum in terms of moment of inertia.
b) Derive an expression for the moment of inertia of a rectangular lamina about an axis at one of its sides and about an axis passing through its centre and perpendicular to its plane. **(2+7)**
- 4 a) Write a short note on time period of a satellite.
b) Derive an expression for the areal velocity in terms of angular momentum and show that when angular momentum is conserved, the motion of a particle is planar and transverse acceleration is zero. **(2+7)**

UNIT III

- 5 a) What is torsion? Explain with an example.
b) What is bending moment? Arrive at an expression for the bending moment of a bar of rectangular and circular cross-section. **(2+7)**

- 6 a) State and explain Hooke's law.
b) Derive the relation between the three elastic moduli in the case of an isotropic solid. (2+7)

UNIT IV

- 7 a) Give the applications of surface tension.
b) Give the theory and derive the expression for finding surface tension of a liquid by drop weight method. (2+7)
- 8 a) How does viscosity vary with temperature and pressure?
b) Derive the general expression for the excess of pressure due to surface tension inside a liquid surface. (2+7)

PART - B

Answer any three questions:

3×5= 15

- 9 Two stages of rocket 200 kg and 10 kg containing 800 kg and 90 kg fuel respectively. Calculate the final velocity attained with a maximum velocity of 1.5 km/s for the escaping gases.
- 10 A flywheel has a moment of inertia of 1 kg m^2 . It is rotating at a speed of 2 revolutions per second. Find the constant torque required to stop the wheel in 5 rotations. Calculate the work done by the braking torque.
- 11 A steel wire 1 mm radius is bent in the form of circular arc of radius 0.6 m. Calculate 1) bending moment 2) maximum stress Given $q = 22 \times 10^{10} \text{ N/m}^2$.
- 12 Find the work done in blowing a soap bubble of surface tension 0.03 N/m so that its diameter changes from 2 cm to 4 cm.

CHOICE BASED CREDIT SYSTEM

B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

CHEMISTRY

General Chemistry-1

Duration:3 Hours

Max Marks:80

PART - A

I. Answer any Five of the following

(2×5= 10 Marks)

- 1 How is Pauling's scale and Mulliken scale related to each other?
- 2 Define ionisation energy.
- 3 What is the relationship between C_p and C_v ?
- 4 What is Joule Thomson coefficient?
- 5 Write the conformational structures of cyclohexane.
- 6 What are benzyne? Name the reaction involving benzyne.

PART - B

II. Answer any seven of the following choosing at least TWO from each Unit.

(10×7= 70 Marks)

UNIT I

- 7 a) Compare the radius of an anion and cation with respect to its neutral atom.
b) Explain the variation of electronegativity with hybridisation.
c) What are Isoelectronic ions? Give examples. (4+3+3)
- 8 a) Explain the variation of Ionisation energy in the periodic table.
b) Explain the classification of chemicals based on chemical properties.
c) How are chemicals classified based on sources? (4+3+3)
- 9 a) Explain the factors affecting Ionisation energy.
b) Explain the components of the language of Chemistry.
c) Balance by hit and trial method $Mn_3O_4 + Al \rightarrow Al_2O_3 + Mn$ (4+3+3)

UNIT II

- 10 a) Derive an expression for work done during reversible isothermal process.
b) Calculate the entropy change for vaporisation of water at 100°C . Latent heat of vaporisation of water is 2260J/g .
c) State the first law of thermodynamics and explain the sign convention. (4+3+3)
- 11 a) Derive Gibbs Helmholtz equation.
b) Discuss the relationship between free energy and spontaneity.
c) How does free energy change with pressure and volume ? (4+3+3)
- 12 a) Derive an expression for entropy change in terms of temperature and pressure for an ideal gas.
b) Derive an expression for work done during an adiabatic process.
c) 8 moles of an ideal gas expands isothermally and reversibly from a volume of 5 dm^3 to 9 dm^3 at 280K . Calculate the work done by the gas. (4+3+3)

UNIT III

- 13 a) What are carbocations? Give the mechanism of a reaction involving carbocation.
b) Explain the nitration and alkylation reaction of benzene.
c) Explain the resonance stabilization of dienes 1,2 versus 1,4 addition. stabilization of dienes (4+3+3)
- 14 a) What are carbenes? Explain the mechanism of a reaction involving carbene.
b) How do you convert cyclobutane to bromocyclobutane and cyclopropane to 1,3 dibromo propane?
c) Write a short note on the polymerization of dienes. (4+3+3)
- 15 a) Explain Homolytic and Heterolytic fission with examples.
b) How do you prepare 1,3 - butadiene by (i) dehydration of diols (ii) dehydrogenation of alkanes
c) Explain substitution reaction with an example. (4+3+3)

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
B.A../B.Com./BBA/BCA FIRST SEMESTER DEGREE EXAMINATION
NOVEMBER 2024
CHEMISTRY
Chemistry in daily life

Duration:2 Hours

Max Marks:60

PART A

I. Answer any FIVE of the following:

5×2= 10

- 1 Name some common food preservatives.
- 2 Define food adulteration.
- 3 Name one difference between a soap and detergent.
- 4 Write the structural formula of a soap.
- 5 What are the disadvantages of secondary battery?
- 6 What are BESS?

PART B

II. Answer any FIVE of the following choosing at least one question from each Unit.

5×10= 50

UNIT I

- 7 a) How are the non permitted colors rhodamine and lead chromate detected in chili powder?
b) Write a brief note on analysis of pesticide residue in food. (6+4)
- 8 a) Explain the two methods of determining the content of fat in milk.
b) How is the adulterant chloral hydrate in toddy detected?

UNIT II

- 9 a) Explain the rancidity of fats and oils.
b) What are the tests performed to detect i) the purity of oils & fats ii) solubility and iii) Translucent test. (4+6)
- 10 a) Write a note on deficiency diseases of vitamin A and vitamin B including their source.
b) What are the sources of vitamin K, vitamin E and vitamin D and their deficiency disease? (5+5)

UNIT III

- 11 a) Explain the classification of polymers based on molecular forces.
b) What are the characteristics of polymers? (6+4)
- 12 a) What are the problems of plastic waste management?
b) Explain the problems of polymers as plastics in aerospace materials. (6+4)

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024
CHEMISTRY
Analytical and Organic Chemistry I

Duration: 2 Hours

Max Marks:60

PART - A**I. Answer any Six from the following:****(2×6= 12 Marks)**

1. Write two differences between accuracy and precision.
2. What is meant by determination and measurement?
3. Explain the term occlusion in gravimetric analysis.
4. Give two examples of titrants used for complexometric titrations.
5. Among chloroacetic acid and acetic acid which is stronger acid and why?
6. State the criteria for aromaticity.
7. Give two examples each for (i) activating groups (ii) deactivating groups
8. Define mesomeric effect and illustrate it.

PART - B**II. Answer any SIX of the following choosing at least one question from each unit****(6×8= 48 Marks)****UNIT I**

9. a. Explain the figures of merit of an analytical method.
b. The concentration of iron in a given sample was found to be 20.17 ppm. Taking the accepted value as 20.00ppm.

Calculate the absolute and relative error percent **(5+3)**

- 10 a. Calculate by the least square method the equation of the best straight line for the calibration curve from the given data:

Conc of Potassium ions (x1)	2	4	6	8	10
Intensity (y1)	15	30	45	60	70

- b. What are the precautions to be taken while handling toxic chemicals, concentrated/fuming acids and organic solvents? **(4+4)**

UNIT II

11. a. Explain the titration curve obtained by titration of a weak base and a strong acid.
b. Explain the action of phenolphthalein. **(4+4)**
12. a. Explain the classification of titrimetric analysis.
b. Write the conditions for a solution to be a primary standard. **(4+4)**

UNIT III

13. a. Explain the mechanism of addition of HBr to propene.
b. Give two methods of preparation of alkanes. **(4+4)**
14. a. Explain Saytzeff's elimination with suitable examples.
b. Explain the mechanism of E2 elimination. **(4+4)**

UNIT IV

15. a. Discuss the mechanism of nitration of benzene.
b. Discuss the mechanism of Friedel Craft's acylation of benzene. **(4+4)**
16. a. How is chlorobenzene converted to aminobenzene? Give the mechanism of this reaction.
b. What is hyperconjugation? What is its importance. **(5+3)**

CHOICE BASED CREDIT SYSTEM

B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

BOTANY

Microbes and Algae

Duration:3 Hours

Max Marks:80

I. Answer any FIVE of the following :**(5×2= 10 Marks)**

1. Write any two symptoms of vein clearing disease.
2. Mention any two uses of SEM.
3. What is denitrification? Give any two examples of denitrifying bacteria.
4. Name the types of movements in Euglena.
5. Name the types of branching of Polysiphonia thallus.
6. What are pyrenoids? Name its constituents.

II. Answer any FIVE of the following :**(5×6= 30 Marks)**

7. Mention the salient features of kingdom Monera. Give examples.
8. Explain the structure of Mycoplasma.
9. Explain the role of bacteria in biotechnology.
10. Explain thallus and trichome structure in Scytonema.
11. Explain conjugation in Spirogyra.
12. Write the general characteristics of xanthophyceae.

III. Answer any FOUR of the following :**(4×10= 40 Marks)**

13. Give an account of Phase Contrast Microscopes.
14. Briefly explain autotrophic nutrition in bacteria.
15. Write the general characteristics of Bacillariophyta.
16. Write a note on binary fission and spore formation in bacteria.
17. Explain the thallus structure and reproduction in Nostoc with a neat labelled diagram.

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

BOTANY

Microbial Diversity and Technology

Duration:2 Hours

Max Marks:60

I. Answer any Five of the following :

(5×2= 10 Marks)

1. Mention any two contribution of Louis Pasteur.
2. Mention any two uses of SEM.
3. What are Photo-organotrophic heterotrophs?
4. Define tyndallisation.
5. Define (i) Pure culture (ii) Mixed culture
6. What is meant by "contagium Vivum Fluidium"?Name the Scientist who gave this name to the viruses?
7. What are saprophytic bacteria. Give two examples.
8. Write the causative organism and any two symptom of Citrus canker.

II. Answer any FOUR of the following :

(4×5= 20 Marks)

9. Write the characteristic features of Kingdom Protista.
10. Define i) Selective media ii) Enriched media
11. Comment on tissue culture for culturing viruses.
12. Write a note on heterothallism in fungi.
13. Explain binary fission in bacteria.
14. Explain Schaeffer-Fulton staining method for endospore.
15. Write a note on growth measurements in microbes.
16. Write the general characteristics of PSTVd.

III. Answer any THREE of the following :

(3×10= 30 Marks)

17. Write a note on (i) Soredium (ii) Isidium
18. Make a note of contributions of Indian Scientists in the field of microbiology.
19. Write a note on (i) characters of Prions (ii) Disease caused by prions.
20. Explain in detail sexual reproduction in *Phytophthora*.

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.A./B.B.A./B.Com./B.C.A. FIRST SEMESTER DEGREE EXAMINATION

: NOVEMBER 2024

MATHEMATICS

Business Mathematics - I

Duration: 2 Hours

Max Marks: 60

PART - A

I. Answer any 8 questions. Each question carries 3 marks: (3×8= 24 Marks)

a. Define a unit matrix with an example.

b. If $A = \begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & -1 \\ -3 & 2 \end{bmatrix}$. Then find AB and BA . Is $AB = BA$.

c. Find $\begin{vmatrix} 1 & 0 & 2 \\ 1 & 2 & 5 \\ 6 & 8 & 0 \end{vmatrix}$

d. If $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$. Then find A^2

e. Find the value of k if the line joining $P(-5, k)$ and $Q(3, 10)$ is perpendicular to the line joining $A(1, 2)$ and $B(-2, 5)$.

f. Show that the lines $3x + 4y - 8 = 0$ and $15x + 20y - 23 = 0$ are parallel.

g. Find the equation of the circle, if the centre is $(2, -3)$ and radius 5 units.

h. Find the equation of the parabola if the vertex is $(0, 0)$ and the focus is $(0, 4)$.

i. If $y = 5x^2$, then find $\frac{dy}{dx}$

j. Find the second order derivative of $y = 10 - 3x^3 + 3x^2 - 3x + 10$ at $x = 2$.

k. Define Marginal cost.

l. Prove that $f(x) = 9 - x^2 - 2x + 7$ has a maximum value at $x = -1$.

PART - B**2. Answer any 2 questions. Each question carries 6 marks:****(6×2= 12 Marks)**

a. Find the adjoint of the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 1 & 3 & 5 \\ 1 & 5 & 12 \end{bmatrix}$.

b. Solve the system of equations by using Cramer's Rule :

$$2x - y + 3z = 9$$

$$x + y + z = 6$$

$$x - y + z = 2$$

c. Solve the system of equations by using Matrix method :

$$2x - y + 3z = 9$$

$$x + y + z = 6$$

$$x - y + z = 2$$

d. A firm produces different pump units, each of which requires some components shown below in a tabular column.

Pump	Housing	Impeller	Bolts	couplings	Inlets	Armoured Hose
Type A	1	1	5	4	2	8m
Type B	1	1	7	3	2	4 m
Type C	1	1	3	5	2	3 m

The firm receives an order for 8 type A units, 4 type B units, 2 type C units. Using the notion of Matrix multiplication, obtain the matrix whose elements may represent the quantities of each item required to make up the order.

PART - C**3. Answer any 2 questions. Each question carries 6 marks:****(6×2= 12 Marks)**

a. Find the equation of the straight line passing through $(-1, -5)$ and

(i) Parallel to $2x + 3y = 5$.

(ii) Perpendicular to $2x + 3y = 5$.

- b. For the following parabola, find the vertex, length of latus rectum, focus, equation of the latus rectum.

(i) $y^2 = 12x$

(ii) $y^2 = -20x$

- c. The demand and supply of a commodity are given by $x_d = 81000 - 160p$ and $x_s = -4500 + 125p$ where x denote quantity and p denotes price. Find the equilibrium price and quantity.

- d. Solve the inequality and show the solution set on a graph.

$$8x + 15 < 3x + 5$$

PART - D

4. Answer any 2 questions. Each question carries 6 marks: (6×2= 12 Marks)

- a. A company has, for x items produced the total cost C and total revenue R given by equations $C = 100 + 0.015x^2$ and $R=3x$. Find how many items be produced to maximize the profit.
- b. The total profit P in rupees on a drug company from the manufacture and sale of x drug bottles is given by $P = \frac{x^3}{600} + 3x - 80$.
- (i) How many drug bottles must the company sell to achieve the maximum profit?
- (ii) What is the profit per drug bottle when this maximum is achieved?
- c. (i)The total cost $C(x)$ in rupees, associated with the production of x units of an item is given by $C(x) = 0.005x^3 - 0.02x^2 + 30x + 5000$. Find the Marginal cost when 3 units are produced.
- (ii) If C is the total cost, x is the total output and the total cost function is given by $C(x) = (3 + 2x^2)^2$. Find the marginal cost at the output level 1.
- d. (i) The total cost C of making x litres of a product is $C = 10 + 30\sqrt{x}$. Find the marginal cost of 100 litres output.
- (ii)Find the average cost and marginal cost if the total cost function of a commodity is given by $y = 8x^2 + 9x + 3$ where y is the total cost and x is the quantity produced

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CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

MATHEMATICS

Number Theory - I, Algebra - I and Calculus - I

Duration: 2 Hours

Max Marks: 60

PART - A

1. Answer any 6 questions. Each question carries 2 marks: (2×6= 12 Marks)

- Find whether $N = 1571724$ is divisible by 9 by using special divisibility test.
- If $a|c$ and $b|c$ with $\gcd(a, b) = 1$, then prove that $ab|c$.
- Define diagonal and scalar matrix of order n .
- Find the rank of the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 0 & 2 & 2 \end{bmatrix}$ by direct method.
- Find the cartesian co-ordinates of the point whose polar co-ordinates are $(2, \frac{\pi}{3})$.
- Define pedal equation of a curve.
- Find 'c' of Rolle's theorem for $f(x) = \frac{\sin x}{e^x}$ in $[0, \pi]$
- Find 'c' of Lagrange's mean value theorem for $f(x) = \sqrt{x^2 - 4}$ in $[2, 3]$.

PART - B

2. Answer any 2 questions. Each question carries 6 marks: (6×2= 12 Marks)

- Use the Euclidean Algorithm to obtain integers x and y satisfying $\gcd(1769, 2378) = 1769x + 2378y$.
- If a cock is worth 5 coins, a hen 3 coins and three chicks together 1 coin, how many cocks, hens and chicks totally 100 can be bought for 100 coins.
- Solve the linear congruence $25x \equiv 15 \pmod{29}$.
- State and prove Chinese remainder theorem.

PART - C

3. Answer any 2 questions. Each question carries 6 marks: (6×2= 12 Marks)

- a. Find the rank of the matrix $A = \begin{bmatrix} 4 & 3 & 0 & -2 \\ 3 & 4 & -1 & -3 \\ -7 & -7 & 1 & 5 \end{bmatrix}$ using elementary transformations .
- b. By using elementary row operations ,find solution or solutions, if they exist , for the system of equations : $4x_1 + 5x_3 = 6, x_2 - 6x_3 = -2, 3x_1 + 4x_3 = 3$
- c. By using elementary row operations , find solution or solutions if they exist , for the system : $x + 3y - 2z = 0, 2x - y + 4z = 0, x - 11y + 14z = 0.$
- d. Verify Cayley Hamilton Theorem for the matrix $A = \begin{bmatrix} 2 & 2 & 1 \\ 1 & 3 & 1 \\ 1 & 2 & 2 \end{bmatrix}$.

PART - D

4. Answer any 2 questions. Each question carries 6 marks: (6×2= 12 Marks)

- a. Find the pedal equation of the curve $r^m = a^m \cos m\theta$.
- b. (i) Find $\frac{dy}{dx}$ for the curve $x = t^2, y = t - 1$.
(ii) Find $\frac{dy}{dx}$ for the curve $r = a(1 + \cos \theta)$.
- c. Find the radius of curvature at any point on the curve $y = c \cos \frac{h}{c} x$.
- d. Trace the curve $r = a(1 + \sin \theta)$.

PART - E

5. Answer any 2 questions. Each question carries 6 marks: (6×2= 12 Marks)

- a. Prove that if a function f is continuous in $[a, b]$, derivable in (a, b) and $f(a) = f(b)$, then there exists at least one value of c in (a, b) such that $f'(c) = 0$.
- b. Determine the limits of the following :
- (i) $x \log(\tan x), x \rightarrow 0$.
(ii) $\frac{\log(x-2)}{\log(e^x - c^2)}, x \rightarrow 2$.
- c. Determine the limits of the following :
- $(x - 4)^{x-4}, x \rightarrow 4$.
- d. Show that $\forall x \in \mathbb{R}, \sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \dots + (-1)^{n-1} \frac{x^{2n-1}}{(2n-1)!} + \dots$

CHOICE BASED CREDIT SYSTEM

B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

MATHEMATICS

Calculus and Analytical Geometry

Duration:3 Hours

Max Marks:80

I. Answer any EIGHT of the following :

(8×3= 24 Marks)

- Define absolute maximum and minimum. Find the absolute maximum and minimum of the function $y = x^2$ in the interval $(-1, 2)$.
- Find the function $f(x)$ whose derivative is $\sin x$ and whose graph passes through the point $(0, 2)$.
- Using L'Hopital's rule find $\lim_{x \rightarrow 0} \frac{3x - \sin x}{x}$.
- Find the value of c that satisfies Mean Value Theorem for the function $f(x) = x + \frac{1}{x}$ on $[\frac{1}{2}, 2]$.
- Write the formula for integration by parts and hence find $\int x^3 \ln(x) dx$.
- Evaluate $\int_{\frac{\pi}{2}}^{\frac{\pi}{3}} \frac{\sec^2(x)}{\tan(x)} dx$.
- Define the average value of a function on $[a, b]$. Find the average value of $f(x) = \frac{-x^2}{2}$ on $[0, 3]$.
- Find the major axis, minor axis, center-to-focus distance, foci, vertices, and center of the ellipse $\frac{x^2}{8} + \frac{y^2}{16} = 1$.
- State the discriminant test.
 - Use the discriminant test to check whether the equation $3x^2 - 6xy + 3y^2 + 2x - 7 = 0$ represents a parabola, ellipse, or hyperbola.
- Find the focus and the directrix of the parabola $x^2 = -16y$.

II. Answer any EIGHT of the following :

(8×7= 56 Marks)

- State and prove Rolle's Theorem.
- Find the local extrema of $f(x) = \frac{(x+1)^2}{x^2+1}$ using the second derivative test.
- For the curve $y = \frac{x^2-3}{x-2}$ on $(-\infty, \infty)$, find the critical points, intervals of increase and decrease, concavity, local extrema, point of inflection, asymptotes and sketch the graph

d. Find the Taylor series and Taylor polynomials of the function $f(x) = x^4 + x^2 + 1$ at $a = 2$ of order 0, 1, 2 and 3 generated by f at a .

e. Evaluate

a) $\int_0^{\frac{\pi}{3}} 3\cos^5(x) dx$

b) $\int 2\sec^3\left(\frac{x}{2}\right) dx$

f. State and prove the fundamental theorem of calculus(Part 1).

g. The ellipse $\frac{x^2}{9} + \frac{y^2}{25} = 1$ is shifted three units to the left and two units down, What is the new equation of the ellipse? Also find the foci, center, vertices of the new ellipse and plot the new foci, vertices, and center in the sketch of the new ellipse.

h. Find the vertex, focus, and directrix of the following parabola $x^2 - 4x - 32y - 28 = 0$. Plot the vertex, focus, and directrix and sketch the parabola

i. Find the center, center to focus distance, foci, vertices and asymptotes for the hyperbola $\frac{x^2}{2} - \frac{y^2}{8} = 1$.

j. Derive the general formula for rotating a conic section represented by the quadratic equation $Ax^2 + Bxy + Cy^2 + Dx + Ey + F = 0$ through an angle α .

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME

B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER/DECEMBER 2023

STATISTICS

Descriptive Statistics

Duration:2 Hours

Max Marks:60

Answer any THREE of the following :**(3×2= 06)**

1. Distinguish between histogram and historigram.
2. Distinguish between Simple random sampling and Stratified sampling.
3. Why is SD regarded as superior measure of dispersion?
4. Explain correlation with an example.
5. Distinguish between probability density function and probability mass function.

Answer any FOUR of the following in not more than a page each :**(4×6= 24)**

6. Define Statistics. List the limitation of statistics.
7. Find variance of $a, a+d, a+2d, \dots, a+2nd$.
8. Find the effect of change of origin and scale on central moments of a variable.
9. Find the value of k so that the correlation coefficient between $X-kY$ and $X+kY$ is maximum where X and Y are independent variables with mean zero and variance unity.
10. Prove that the two independent variables are uncorrelated whereas the converse need not be true.
11. State and prove the multiplication theorem of probability for any two events. What will happen if the events are independent?

Answer any THREE of the following in not more than two page each :**(3×10= 30)**

12. a) Show that the sum of squares of deviations of a values of a variable is minimum when the deviations are taken from the mean. (5)
b) Obtain the expression for combined Geometric mean. (5)

13. In case of bivariate data, how do you fit a curve of the type $Y=ax^b$?
14. Show that Spearman's rank correlation coefficient lies between -1 and +1.
15. If $f(x,y)=2-x-y$, $0 \leq x \leq 1$, $0 \leq y \leq 1$. (i) Verify whether X and Y are independent. (ii) Find the conditional distributions.
16. a) Show that conditional probability satisfies the axioms of probability. (5)
b) State and prove Baye's theorem of inverse probability. (5)

CHOICE BASED CREDIT SYSTEM

B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

STATISTICS

Descriptive Statistics

Duration:3 Hours

Max Marks:80

I. Answer any FIVE of the following :

(5×2= 10 Marks)

1. Explain Ratio scale with an example.
2. Mention any two properties of regression coefficients.
3. Define Random Variable.
4. What do you mean by Index numbers?
5. Write short note coefficient of Determination..
6. What is equilibrium? Explain.

II. Answer any FIVE of the following :

(5×6= 30 Marks)

7. If all the zero order correlation coefficient are equal then prove that all partial correlation coefficient are also equal.
8. With usual notations prove that $0 \leq P(A \cap B) \leq P(A) \leq P(A \cup B) \leq P(A) + P(B)$.
9. State and prove the Multiplication Theorem of Expectation.
10. Fisher's index number is an Ideal index numbers Comment.
11. Describe M.G F. State and prove any two properties of MGF.
12. Prove that the regression coefficients are independent of change of origin but dependent on scale.

III. Answer any FOUR of the following :

(4×10= 40 Marks)

13. The regression equation of Y on X and X on Y are $Y=X$ and $4X-Y=3$ and second moment of X about origin is 2, then find r and S.D(Y).
14. a) Show that Conditional Probability satisfies the axioms of Probability. (5)
b) If A_1, A_2, \dots, A_k are k independent events with $P(A_i) = 1/(1+i)$, $i=1, 2, \dots, k$. Find the probability of occurrence of atleast one of these events. (5)

15. Explain the concept of Pareto's law of Income distribution and mention its applications.
16. a) If $f(x,y)=2-X-Y$, $0 \leq X \leq 1$, $0 \leq Y \leq 1$, verify whether X and Y are independent. (5)
- b) A continuous random variable has its p.d.f $f(x)= 6x(1-x)$ $0 \leq x \leq 1$, find mean and standard deviation of the variable. (5)
17. Prove that coefficient rank correlation lies between -1 and +1.

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
B.Sc./B.A FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024
NUTRITION AND HEALTH EDUCATION
Fundamentals of Nutrition and Food Science

Duration:3 Hours

Max Marks:80

Section A

I. Answer any Five of the following: (5×2= 10)

1. Define food.
2. List down any two functions of vitamin E.
3. List the tests to determine freshness of egg.
4. List down any two advantages of microwave cooking.
5. What is the disadvantage of boiling?
6. What is rancidity?

Section B

II. Answer any Five of the following: (5×5= 25)

7. How does the food affect a person's psychological status?
8. Classify fats.
9. What are the effects of cooking on milk? Explain.
10. Write a note on parboiling.
11. List down the importance of nutrition in health and disease.
12. List down the functions of vitamin B12.

Section C

III. Answer any Three of the following: (3×15= 45)

13. a) Classify food based on their functions with examples. (5)
b) Write a note on MyPlate (5)
c) RDA (5)

14. Explain Iodine under following heads:

- a) Functions (5) b) Deficiency (7) c) Sources (3)

15. Enumerate on cereals under following heads:

- a) Nutritional contribution (7) b) Gelatinization (5) c) Retrogradation (3)

16. Explain any 5 precooking methods in detail.

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22NHEE11

Reg No :

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
B.A./B.B.A./B.Com./B.C.A./B.Sc. FIRST SEMESTER DEGREE EXAMINATION
NOVEMBER 2024

NUTRITION AND HEALTH EDUCATION

Human Nutrition

Duration:2 Hours

Max Marks:60

SECTION - A

Answer the following strictly observing the internal choice provided:

4×5=20

UNIT 1

- 1) Explain the need to maintain a balanced diet.

OR

- 2) Explain the psychological functions of food with examples.

UNIT 2

- 3) Explain the functions of protein in the human body.

OR

- 4) Explain the functions of lipids in the human body.

UNIT 3

- 5) Explain the functions of Iodine.

OR

- 6) Explain on deficiency of vitamin E .

UNIT 4

- 7) Explain the dietary recommendation for a adolescent boy.

OR

- 8) Explain the dietary recommendation for a adult woman.

SECTION - B

Answer the following strictly observing the internal choice provided:

4×10=40

UNIT 1

- 9) Write in detail about understanding the importance of nutrition.

OR

- 10) What are nutrients? Explain each of its classification with example.

UNIT 2

- 11) Explain dietary fibre under following heads :

i) functions ii) Excess consumption

OR

- 12) Explain carbohydrates under following heads :

i) Functions ii) Excess consumption

UNIT 3

- 13) Explain Vitamin B1 under following heads: i) Functions ii) Deficiency

OR

- 14) Explain Vitamin A under following heads : i) Deficiency ii) Functions

UNIT 4

- 15) What are the nutritional problems seen during pregnancy? Add a note on their nutritional requirements.

OR

- 16) Explain infancy under following head:

i) physiological changes ii) nutritional problems

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
B.A./B.Sc FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024

CHEMISTRY

Fundamentals of food and nutrition science

Duration: 2 Hours

Max Marks: 60

SECTION - A

Answer the following strictly observing the internal choice provided:

4×5=20

UNIT 1

- 1) Give the importance of nutrition in health and disease.

OR

- 2) Write briefly on psychological and social functions of food.

UNIT 2

- 3) Elaborate the functions and sources of

- a) iron
b) iodine.

OR

- 4) a) What are fats, proteins and carbohydrates.
b) Mention their general requirements.

UNIT 3

- 5) Write the changes that occur during cooking of fruits and vegetables.

OR

- 6) Briefly explain the criteria used in the selection of cereals and pulses.

UNIT 4

- 7) Write about grilling and roasting methods with their advantages.

OR

- 8) Explain soaking and fermentation with advantages.

SECTION - B

Answer the following strictly observing the internal choice provided:

4×10=40

UNIT 1

- 9) Elaborate the various terms related to food, nutrition and health and its relationship.

OR

- 10) How does food affect a person's physiology? Explain.

UNIT 2

- 11) Explain the functions of thiamine and write about its deficiency

OR

- 12) Write the functions, sources and effects of deficiency of

- a) Vitamin A
- b) Vitamin D.

UNIT 3

- 13) Explain the nutritional contribution and changes during cooking of fats and oil. Add a note on rancidity.

OR

- 14) Explain the changes during cooking of

- a) eggs
- b) meat
- c) poultry
- d) fish

UNIT 4

- 15) Explain the process of parboiling of cereals with its merits.

OR

- 16) How can microwave cooking and baking effect the quality of food?

CHOICE BASED CREDIT SYSTEM**B.Sc./B.A FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024****COMPUTER ANIMATION****Fundamentals of Art & Animation****Duration:3 Hours****Max Marks:60****I. Answer any FIVE of the following :****{5×2= 10 Marks}**

1. Define line segment.
2. Define circular or cyclical time.
3. Define chroma.
4. Explain the relationship between colors and value
5. Explain movement in art.
6. Explain Unrealistic Proportions.

II. Answer any FIVE of the following :**{5×6= 30 Marks}**

7. When is multi-point perspective used in art?
8. Write a note on shapes.
9. Differentiate between symmetrical and asymmetrical balance.
10. Write a note on harmony in art.
11. Define rhythm and name its types.
12. Write a note on contrast in art.

III. Answer any FOUR of the following :**{4×10= 40 Marks}**

13. Discuss the various techniques used to create the illusion of depth on a two-dimensional surface.
14. Explain repeated figures, multiple images, Anticipated motion.
15. Explain the techniques to create a unified composition.
16. Draw and color the color wheel along with color characteristics.
17. What are the techniques to bring contrast and what do you mean by absence of focal point?

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
BA/B.Com./B.B.A./B.C.A FIRST SEMESTER DEGREE EXAMINATION
NOVEMBER 2024
COMPUTER ANIMATION
Basics of Graphic Design

Duration:2 Hours

Max Marks:60

PART A

Answer any FIVE questions:

(5×2= 10)

- 1) Define Raster graphics.
- 2) What do you mean by background in a design?
- 3) Name few the tools found on tool bar.
- 4) Name the colors that are included in Grey scale.
- 5) Expand TIFF.
- 6) How to Export a photo in Photoshop?

PART B

Answer any FIVE questions :

(5×6= 30)

- 7) List the characteristics of vector graphics.
- 8) Explain the characteristics of digital imagery.
- 9) What is perspective in art? What are its key elements?
- 10) Write a note on color history.
- 11) Define Vector Graphics.
- 12) Define secondary color and its formation.

PART C

Answer any TWO questions :

(2×10= 20)

- 13) Explain Tertiary colors in detail. How are they formed?
- 14) Write the uses of various tools used in photoshop.
- 15) Write a brief note on raster graphics and its advantages.

21ZOOC101

Reg No :

CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024
ZOOLOGY

Cytology, Genetics and Infectious Disease

Duration: 2 Hours

Max Marks: 60

SECTION - A

Answer the following strictly observing the internal choice provided:

4×5=20

UNIT 1

- 1) Write the salient features of the plasma membrane.

OR

- 2) Give a brief account of Microfilaments in non-muscle cells

UNIT 2

- 3) Comment on the types of Nucleotide bases.

OR

- 4) Describe Intracellular Receptors.

UNIT 3

- 5) Describe multiple allelism in rabbits.

OR

- 6) Write a brief note on sex limited characteristics.

UNIT 4

- 7) Explain Bacteria and Fungi as pathogenic organisms.

OR

- 8) Write a note on pedigree analysis.

SECTION - B

Answer the following strictly observing the internal choice provided:

4×10=40

UNIT 1

- 9) Explain the types of transport mechanisms across the membranes.

OR

- 10) Explain the different types of prokaryotic and Eukaryotic ribosomes.

UNIT_2

- 11) Give an account of cell division by Mitosis.

OR

- 12) Give a detailed account of different types of RNA.

UNIT_3

- 13) Explain complete and incomplete dominance with an example for each.

OR

- 14) Explain with an example.

- a) Sex-linked characteristics in humans
- b) Sex chromosome dosage compensation.

UNIT_4

- 15) Explain the pattern of autosomal dominant and autosomal recessive inheritance.

OR

- 16) Write a short note on the symptoms and control measures of

- a) Filariasis b) Giardiasis

CHOICE BASED CREDIT SYSTEM
B.Sc. FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024
ZOOLOGY
Zoomorphology I

Duration: 3 Hours

Max Marks: 80

I. Answer any FIVE of the following :**(5×2= 10 Marks)**

1. Give the schematic representation of water flow in Sycon type canal system.
2. Mention two principles of the ICZN.
3. Write a short note on sexual dimorphism in *Ascaris*.
4. Write any four characters of Class Hirudinea with two examples.
5. Name the different types tropil in insects.
6. Write any two distinguishing features of Class Gastropoda.

II. Answer any FIVE of the following :**(5×6= 30 Marks)**

7. Draw and explain the lifecycle of *Plasmodium vivax* in man.
8. Draw a labeled diagram and explain different types of zooids found *Hydra*.
9. Describe the cysticercus formation in *Taenia solium*.
10. Draw and explain the life cycle of *Pheritima*.
11. Write any six distinguishing features Class Ophiuroidea with an example.
12. With a neat labeled diagram explain mouthparts of Honeybee.

III. Answer any FOUR of the following :**(4×10= 40 Marks)**

13. Classify the Phylum Porifera upto classes giving salient features and two examples for each class.
14. Explain the general characters of Phylum Protozoa with two examples.
15. Explain the external features of Leech, with a neat labeled diagram.
16. Give an account of the general characters of the Phylum Platyhelminthes with any two examples.
17. Comment on the Annelidan and Arthropodan characteristics of *Peripatus*.

21ZOOE11

Reg No :

**CHOICE BASED CREDIT SYSTEM SEMESTER SCHEME
FIRST SEMESTER DEGREE EXAMINATION NOVEMBER 2024**

ZOOLOGY

Economic zoology

Duration: 2 Hours

Max Marks: 60

SECTION - A

Answer the following strictly observing the internal choice provided:

4×5=20

UNIT 1

- 1) Write a short note on any two types of silkworms.

OR

- 2) Explain any five equipments used in silkworm rearing.

UNIT 2

- 3) Write a short note on the Indian breeds of chicken.

OR

- 4) What is dairy management. Mention the advantages of dairy farming.

UNIT 3

- 5) Write a note on Aquarium filters.

OR

- 6) Comment on laws and regulations guarding aquaculture.

UNIT 4

- 7) Explain the composition of lac. Comment on the harvest and extraction of lac.

OR

- 8) Comment on the strains of lac insect and its host plants

SECTION - B

Answer the following strictly observing the internal choice provided:

4×10=40

UNIT 1

- 9) Explain the methods involved in bee keeping.

OR

10) Explain the life cycle of honey bee.

UNIT 2

11) Explain any five diseases of poultry.

OR

12) Write in detail about the products obtained from cattle in dairy farming.

UNIT 3

13) Give an account of marine fishing crafts of West coast.

OR

14) Describe the storage process of prawns.

UNIT 4

15) Explain the different types of earthworms.

OR

16) Give a detailed account of the various stages of vermicomposting.
