No. of Printed Pages : **2**

36629

B.Sc. VI Semester Degree Examination, September/October - 2023

PHYSICS - VI

6.1 : Nuclear Physics, Solid State Physics, Astrophysics & Biophysics

101304

(CBCS)

Time : 3 Hours | Maximum Marks : 70

Note : *(i) Answer all questions from section A in first two pages only.*

(ii) Non-Programmed scientific calculators are allowed.

SECTION - A

Answer the following questions : **15x1=15**

1. What is scintillation ?
2. Define Nuclear fission.
3. Define Miller Indices.
4. How many atoms per unit cell are present in a simple cubic crystal ?
5. Define a primitive cell.
6. Define decay constant.
7. How does Fermi energy vary with temperature ?
8. Define binding energy of the nucleus.
9. Give any two examples of Non-conventional energy sources.
10. What is meant by parsec ?
11. Define luminosity of a star.
12. What is hysterisis loop in a magnetism ?
13. Define critical temperature of a super conductor.
14. Define white dwarfs.
15. What is Debye's temperature ?

P.T.O.

SECTION - B

Answer **any five** of the following. **5x5=25**

16. What is nuclear force ? What are the characteristics of nuclear forces ?

17. State the Radioactive decay law and derive the expression.
$N=N_o e^{-\lambda t}$

18. Explain Einstein's theory of specific heat of solids ?

19. Derive Bragg's law of x-ray diffraction.

20. Discuss the Langevin's classical theory of diamagnetism.

21. Write a note on nuclear shell model.

22. Write a short note on formation and evolution of stars.

SECTION - C

Answer **any three** of the following. **3x10=30**

23. Explain the construction and working of a cyclotron with neat diagram. **10**

24. (a) Explain the procedure for finding Miller Indices with example. **5+5**
(b) Define half-life and mean life of radioactive substance and obtain the relation between them.

25. (a) Describe wind energy. **5+5**
(b) Obtain an expression for electrical conductivity of metals.

26. (a) Write a short note on Meissner's effect. **5+5**
(b) Describe BCS theory of superconductor.

27. (a) What is nuclear force ? What are characteristics of nuclear forces ? **5+5**
(b) Discuss the classifications of stars based on temperature.

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No. of Printed Pages : 2

36630

B.Sc. VI Semester Degree Examination, September/October - 2023

PHYSICS - VII

6.2 : Material Science and Electronics-II

101272

(CBCS)

Time : 3 Hours | Maximum Marks : 70

Note : *Write answers to Section - **A** in first **two** pages only.*

SECTION - A

Answer the following : **15x1=15**

1. What is crystalline state of a material ?
2. Give one example of ionic bond.
3. Define Elasticity.
4. What is fatigue of a material ?
5. Define thin film.
6. Name any one method of preparation of thin film.
7. What is Nano material ?
8. State Barkhausen criterion for oscillation.
9. What is a multivibrator ?
10. Convert the binary number (1101) to decimal number.
11. Define flip flop.
12. Define shift register.
13. What is frequency modulation ?
14. Define selectivity of the radio receiver.
15. What are superheterodynes ?

P.T.O.

SECTION - B

Answer any **five** of the following : **5x5=25**

16. Explain engineering classification of materials.

17. Explain the properties of metallic bond.

18. Write any five applications of thin films.

19. Write a note on quantum nano structure.

20. Explain the technique of synthesis of nano-materials.

21. Write a note on monostable multivibrator.

22. Explain full adder with neat circuit diagram.

SECTION - C

Answer any **three** of the following : **3x10=30**

23. (a) Distinguish between crystalline and non crystalline states of materials. **5+5**
    (b) Write a note on fracture.

24. (a) Write a note on Creep. **5+5**
    (b) Explain dielectric properties of insulators.

25. (a) With a neat circuit diagram explain the working of Colpitt's oscillator. **7+3**
    (b) In a transistor Colpitt's oscillator $C_1 = 0.001$ μF, $C_2 = 0.01$ μF and $L = 5$ μH. Find the frequency of oscillation.

26. (a) Write a note on JK flip flop. **5+5**
    (b) Explain logic gates OR AND using diodes with truth table.

27. (a) Write a note on need for modulation. **5+5**
    (b) Describe superheterodyne radio receiver with neat block diagram.

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No. of Printed Pages : **2**

36623

B.Sc. VI Semester Degree Examination, September/October - 2023

CHEMISTRY - VII

6.1

CBCS (New)

101940

Time : 3 Hours | Maximum Marks : 70

Note : *(i) Section : **A** contains questions from Inorganic, Organic and Physical Chemistry.*
*Section : **B** contains questions from Inorganic Chemistry.*
*Section : **C** contains questions from Organic Chemistry.*
*Section : **D** contains questions from Physical Chemistry.*
*(ii) Answer all the four sections **A**, **B**, **C** and **D**.*

SECTION - A

Answer **any ten** of the following. **10x1=10**

1. What is glass ?

2. Name the vehicles used in paint.

3. Give different types of water pollution.

4. What are polyphosphazenes ?

5. What are enzymes ?

6. What is the structure of Atropine ?

7. Write isoprene rule of terpenoids.

8. What is peptide linkage ?

9. What are electromagnetic radiations ?

10. State Born-Oppenheimer approximation.

11. Classify the molecules into IR active and IR inactive CO_2, CO, Cl_2 and HCl.

12. What are stokes lines ?

P.T.O.

SECTION - B

Answer **any two** of the following. **2x10=20**

13. (a) Explain the manufacture of cement by dry process. **6**

(b) Write a note on silicones. **4**

14. (a) Describe the manufacture of white lead by Dutch process. **6**

(b) Write a note on types and sources of air pollution. **4**

15. (a) Write a note on polyphosphazenes. **6**

(b) Discuss the impacts of water pollution on environment. **4**

SECTION - C

Answer **any two** of the following. **2x10=20**

16. (a) Elucidate the structure of citral. **6**

(b) Give the synthesis of dipeptide glycylalanine. **4**

17. (a) What are vitamins ? Write the biological importance of Vitamin B_1. **6**

(b) What are alkaloids ? Discuss their classification. **4**

18. (a) What are hormones ? Discuss their classification. **6**

(b) Explain the mechanism of enzyme action by lock and key model. **4**

SECTION - D

Answer **any two** of the following. **2x10=20**

19. (a) Derive the expression for energy level diagram of rotational spectra for rigid diatomic molecule. **6**

(b) Explain briefly the factors which affect the intensity of spectral lines. **4**

20. (a) Discuss the pure rotational Raman spectra of diatomic molecule. **6**

(b) Write a note on basic features of different spectrophotometers. **4**

21. (a) Explain anhormonic oscillator model of the vibrational spectral with energy level diagram. **6**

(b) The separation of rotational spectral lines occured at 332 m^{-1} for CO molecule. Calculate the internuclear bond length. **4**

Reduced mass of CO = 2.24×10^{-26} kg, h = 6.626×10^{-34} Js.

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36624

B.Sc. VI Semester Degree Examination, September/October - 2023

CHEMISTRY

6.2 - VIII

(CBCS NEW)

101956

Time : 3 Hours | Maximum Marks : 70

Note : *(i) Section-A : Contains questions from Inorganic, organic and physical chemistry.*

(ii) Section-B : Contains questions from Inorganic chemistry.

Section-C : Contains questions from organic chemistry.

Section-D : Contains questions from physical chemistry.

*(iii) Answer **all** the four sections A, B, C and D.*

SECTION-A

Answer **any ten** of the following questions : **10x1=10**

1. Give the IUPAC name of $Fe(CO)_5$.

2. Define EAN rule.

3. What are non essential trace elements ?

4. What are nano materials ?

5. How do you convert succinic dialdehyde into furan ?

6. Define adulteration.

7. What are pesticides ?

8. What are antibiotics ?

9. Define liquid junction potential.

10. What is amalgam electrode ?

11. Define standard electrode potential.

12. What are irreversible cells ?

P.T.O.

SECTION-B

Answer **any two** of the following questions : **2x10=20**

13. (a) Explain preparation, structure and bonding in metal carbonyls. 6
    (b) Write any two methods of preparation of organo-aluminium compounds. 4

14. (a) Describe the structure and function of myoglobin. 6
    (b) Explain enzymatic properties of cytochromes. 4

15. (a) Explain Fe-C phase transformations with neat and labelled diagram. 6
    (b) Write a note on classification of materials. 4

SECTION-C

Answer **any two** of the following questions : **2x10=20**

16. (a) Describe the molecular orbital picture and aromaticity of pyridine. 6
    (b) Write any two methods of synthesis of furan. 4

17. (a) Describe the chlorinated pesticides analysis in food products by TLC technique. 6
    (b) How do you analyse moisture in vegetable oils ? 4

18. (a) Describe the classification of drugs. 6
    (b) Write the synthesis of paracetamol. 4

SECTION-D

Answer **any two** of the following questions : **2x10=20**

19. (a) Derive an expression for EMF of the concentration cell with transference. 6
    (b) Write a note on liquid junction potential. 4

20. (a) Describe Daniel cell with a neat labelled diagram. 6
    (b) Explain potentiometric acid-base titration. 4

21. (a) Describe the primary cell (Dry cell) with a neat and labelled diagram. 6
    (b) Write a note on Calomel electrode. 4

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36631

B.Sc. VI Semester Degree Examination, September/October - 2023

MATHEMATICS - XII

6.1 : Trigonometry, Topology and Fuzzy sets

101314

(CBCS)

Time : 3 Hours | Maximum Marks : 70

Note : *Answer* ***all*** *sections.*

SECTION - A

Answer **any five** of the following. **5x2=10**

1. Define Comparable Topologies with example.

2. Give an example to prove that $d(A \cap B) \neq d(A) \cap d(B)$.

3. Define interior and exterior of a set.

4. Prove that
$\sinh 3x = 3\sinh x + 4\sinh^3 x$.

5. Find the real and imaginary parts of $\sin(x+iy)$.

6. Define compliment of a fuzzy subset with an example.

7. Define α-cut and strong α-cut set of fuzzy subset A.

SECTION - B

Answer **any five** of the following. **5x6=30**

8. Let X be any set. τ be family of subsets of X defined as follows. A subset G of X belongs to τ. i.e. $G \in \tau$ iff.
   (a) G is empty or
   (b) G' is finite then prove that τ is a topology on X.

9. Define closed set. Let (X, τ) be a topological space. A subset A of X is open if and only if A' is closed.

P.T.O.

10. Let (X, τ) be a topological space. A and B are subsets of X, then prove that
    (a) $d(\phi) = \phi$
    (b) If $A \subset B$ then $d(A) \subset d(B)$.

11. Every Finite T_1-space, is discrete space.

12. Let (X, τ) be a topological space and A, B, C, X then prove that
    (a) $A \subset B \Rightarrow A^\circ \subset B^\circ$
    (b) $(A \cap B)^\circ = A^\circ \cap B^\circ$.

13. Let $X = \{a, b, c, d, e\}$,
    $\tau = \{X, \phi, \{a\}, \{a, b\}, \{a, c, d\}, \{a, b, c, d\}, \{a, b, e\}\}$ be a topology on X.
    Find A°, $(A')^\circ$, $\partial(A)$ where $A = \{a, b, c\}$.

14. Define Hausdorff Space and prove that every Discrete space is a Hausdorff Space.

SECTION - C

Answer **any five** of the following. **5x6=30**

15. Expand $\frac{\sin 6\theta}{\cos\theta}$ as a series in powers of $\sin\theta$.

16. Express $\cos^6\theta$ in terms of cosines of multiples of θ.

17. If $A + iB = C.\tan(x + iy)$ then show that :

$$\tan 2x = \frac{2AC}{C^2 - A^2 - B^2}$$

18. Find all the values of $\text{Log}(\sqrt{3} - i)$.

19. Sum the series $\cos\alpha + \cos(\alpha+\beta) + \cos(\alpha+2\beta) + \ldots\ldots$ to n terms.

20. Let $f : X \to Y$ be a function where X, Y are two sets. Prove that :
    $f(A \vee B) = f(A) \vee f(B)$.

21. Let $X = \{1, 2, 3, 4, 5\}$, $A = \{1, 0.2), (2, 0.4), (3, 0.6), (4, 0.9), (5, 1)\}$.
    Find all α-cutsets and strong α-cutsets of A where $\alpha = 0.2, 0.3, 0.5$.

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36632

B.Sc. VI Semester Degree Examination, September/October - 2023

MATHEMATICS - XIII

6.2 : Numerical Analysis

(CBCS) (NEW)

101336

Time : 3 Hours | Maximum Marks : 70

Note : *Answer* ***all*** *sections.*

SECTION-A

Answer **any five** of the following questions. **5x2=10**

1. Find the number of trustworthy figures in $(0.318)^3$ assuming that 0.318 to the last figure.

2. State Regula falsi method.

3. Construct backward difference table for given data :

x :	5	10	15	20	25
y :	9962	9848	9659	9397	9063

4. Prove that $\Delta[af(x) + bg(x)] = a\Delta f(x) + b\Delta g(x)$.

5. Prove that $E = 1 + \Delta$

6. Evaluate $\int_0^1 e^x dx$ approximately in steps of 0.2 using Trapizoidal Rule.

7. State Euler Modified method.

SECTION-B

Answer **any five** of the following. **5x6=30**

8. The equation $x^4 - x - 10 = 0$ has one root between 1.8 and 2. Find the root correct to 3 places of decimal by method of false position.

9. Using Newton-Raphson method, find the root near 2.9 of the equation $x + \log_{10} x = 3.375$, correct to four significant figures.

P.T.O.

10. Use Gauss-Seidal iteration method to solve $10x+y+z=12$; $2x+10y+z=13$; $2x+2y+10z=14$.

11. Express $x^4-12x^3+24x^2-30x+9$ and its successive differences in factorial notation.

12. Prove that :

$$v_0-v_1+v_2-v_3+\ldots=\frac{1}{2}v_0+\frac{1}{4}\Delta v_0+\frac{1}{8}\Delta^2 v_0-\frac{1}{16}\Delta^3 v_0+\ldots\ldots$$

13. Find the polynomial of lowest degree which assumes the values 10, 4, 40, 424 and 620 at $x=-2$, 1, 3, 7 and 8. Also find the value of the polynomial at $x=6$.

SECTION-C

Answer **any five** of the following questions. **5x6=30**

14. Find $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$ at $x=54$ from the following table.

x :	50	51	52	53	54
y :	3.6840	3.7084	3.7325	3.7563	3.7798

15. Evaluate $\int_0^6\left(\frac{1}{1+x^2}\right)dx$ by using Trapiziodal Rule and Simphson's 1/3rd Rule.

16. Obtain an approximate value of $\int_0^{0.3}\left(2x-x^2\right)^{1/2}.dx$. Given h=0.05 and $n=6$ by using Weddle's Rule.

17. Using Taylor's series find the solution of $x\frac{dy}{dx}=x-y$, $y(2)=2$ at $x=2.1$ correct to five decimal places.

18. Using Euler's Modified Method, solve $dy/dx=x^2+y$ where $y=0.94$ when $x=1$ for $x=0.1$.

19. Solve $dy/dx=x+y^2$ with initial condition $y=1$ when $x=0$ for $x=0.2$ (0.2) 0.4 using Runge-Kutta method.

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36633

B.Sc. VI Semester Degree Examination, September/October - 2023

MATHEMATICS - XIV

6.3 : Graph Theory - II

101285

(CBCS)

Time : 3 Hours | Maximum Marks : 70

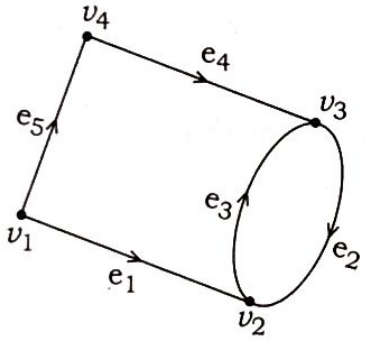
Note : *Answer* ***all*** *sections.*

SECTION - A

Answer **any five** of the following : **5x2=10**

1. Define Symmetric digraph with an example.

2. Find the out degree and indegree of the digraph.



3. Draw line graph of the following graph G.

G :

4. A connected planar graph G has 9 vertices with degrees 2, 2, 3, 3, 3, 4, 5, 6, 6. Find the number of regions or faces of G.

5. Define inner vertex set. Find the inner vertex set of $K_{2,3}$.

6. Draw two different 2-Chromatic graphs.

7. Define Spectra of a graph.

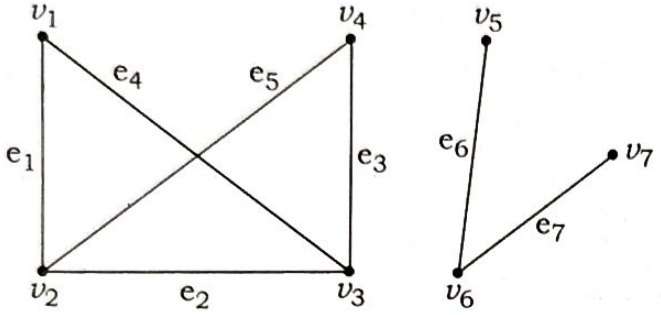
P.T.O.

SECTION - B

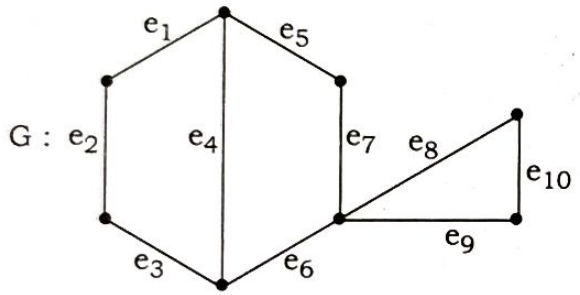
5x6=30

Answer **any five** of the following :

8. Find the incidence matrix of a disconnected graph.



9. Define cycle matrix. Find the cycle matrix of the graph G shown below :



10. Define incidence matrix. Find the graph G whose incidence matrix is :

$$\begin{bmatrix} 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \\ 1 & 0 & 0 & 1 \\ 1 & 1 & 0 & 0 \end{bmatrix}$$

11. If G is (p,q) graph whose vertices have degree d_i then show that L (G) has q vertices and q_L edges where

$$q_L = \frac{1}{2}\sum_{i=1}^{p} d_i^2 - q$$

12. Let G be a connected planar graph with p vertices, q edges and r regions (or faces) then prove that $q-p+2=r$.

13. Let G be a connected graph with p vertices and q edges. If G is triangle free then prove that

(i) $q \geq 2r$

(ii) $q \leq 2p-4$

14. Show that K_5 and $K_{3,3}$ are non-planar.

SECTION - C

Answer **any five** questions : **5x6=30**

15. Prove that a graph of the order of n (≥ 2) Consisting of a single cycle is 2-Chromatic if n is even and 3-Chromatic if n is odd.

16. Prove that a graph G is 2-Chromatic if and only if it is a non-null bipartite graph.

17. If D is a digraph of the oder of p and size q with V (D) = $\{v_1, v_2, v_3, .., v_p\}$ then prove that

$$\sum_{i=1}^{p} od\, v_i = \sum_{i=1}^{p} id\, v_i = q$$

18. If $\Delta(G)$ is the maximum of the degrees of the vertices of a graph G, then prove that $\chi(a) \leq 1 + \Delta(G)$.

19. Determine the Chromatic polynomial of K_4.

20. If G is connected graph and e = {a, b} is an edge in G then

$P(G_e, \lambda) = P(G, \lambda) + P(G_e^1, \lambda)$

21. Prove that every connected simple planar graph G is 6-colorable.

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36621

B.Sc. VI Semester Degree Examination, September/October - 2023

BOTANY - VI

6.1 : Plant Breeding Biotechnology and Plant Tissue Culture

(CBCS)

100683

Time : 3 Hours | Maximum Marks : 70

Note : *(i) Answer* ***all*** *the questions.*

(ii) Draw diagram wherever necessary.

I. Answer the following questions. **15x1=15**

1. Expand PCR.
2. What is haploid culture ?
3. What is Bagging ?
4. Define Air layering.
5. What is Callus ?
6. What is mass selection ?
7. What is propagation ?
8. What are plasmids ?
9. Define Acclimatization.
10. What are restriction enzymes ?
11. What is bud gratting ?
12. What is southern blotting ?
13. What are marker genes ?
14. What is artificial pollination ?
15. What is Inoculation ?

P.T.O.

II. Answer **any five** of the following. **5x5=25**

16. Write a note on recurrent selection.

17. Write a note on Pollen bank and Quarantine methods.

18. What is intergeneric hybridization ? Explain with an example.

19. Write a note on PBR^{322} with neat labelled diagram.

20. Mention the applications of DNA finger printing.

21. What is gene therapy ? Mention its uses.

22. Explain the steps involved in the callus culture.

III. Answer **any three** of the following. **3x10=30**

23. What is somatic embryogenesis ? Explain the process of somatic embryogenesis.

24. Describe any two plant breeding method in detail.

25. B.T. cotton is an example for transgenic plant justify ?

26. What is hybridization ? Explain the steps involved in hybridization technique.

27. What is production of Polyclonal and Monoclonal antibodies ?

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No. of Printed Pages : **2**

36622

B.Sc. VI Semester Degree Examination, September/October - 2023

BOTANY

6.2 : Plant Physiology - VII

100683

(CBCS) (NEW)

Time : 3 Hours | Maximum Marks : 70

Note : *(i) Answer **all** the questions.*

(ii) Draw diagram wherever necessary.

SECTION - A

I. Answer **all** the following questions. **15x1=15**

1. What is semipermeable membrane, give an example ?
2. What is incipient plasmolysis ?
3. Define a growth.
4. What is root pressure ?
5. Write a empirical formula of chlorophyll-a.
6. What is an ascent of sap ?
7. What are enzymes ?
8. What are respiratory substrates ?
9. Expand FAD.
10. Name the site of glycolysis in a cell.
11. What is absorption spectrum ?
12. What is transpiration pull ?
13. What is Chlorosis ?
14. Define Imbibition.
15. Name the gaseous hormone.

P.T.O.

SECTION - B

II. Answer **any five** of the following questions. **5x5=25**

16. Describe the phenomena of photoperidism.

17. Explain briefly the role of axins on plant growth.

18. Name any 2 C_4 plants, give anatomical character of these plants with diagram.

19. Define R.Q., give R.Q. values of carbohydrates, fats and organic acids.

20. Why is transpiration in higher plants called a necessary evil ?

21. Explain protoplasmic streaming hypothesis.

22. Explain the Black Mann's Law of limiting factor.

SECTION - C

III. Answer **any three** of the following questions. **3x10=30**

23. What are enzymes ? Discuss their mechanism of action.

24. Define carbon fixation in plants. Describe the three phases of Calvin Cycle.

25. Describe the process and role of citric acid cycle in living organism.

26. Explain Non-cyclic photophosphorylation.

27. Describe active and passive absorption of water in plants.

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36637

B.Sc. VI Semester Degree Examination, September/October - 2023

ZOOLOGY - VI

Z-6.1 : Genetics Molecular Biology and Biotechnology

(CBCS)

100683

Time : 3 Hours | Maximum Marks : 70

Note : *(i) Answer **all** the Questions.*

(ii) Draw labelled diagrams wherever necessary.

SECTION - A

Answer **any five** of the following. **5x2=10**

1. Define Allele and Phenotype.
2. What is Gene Polymorphism ? Give example.
3. What do you mean by Codominant alleles ? Give example.
4. Define Chromatid and Euchromatid.
5. What is Y-linked Inheritance ? Give example.
6. List out four Nucleotides of DNA.

SECTION - B

PART - A

Answer **any four** of the following. **4x5=20**

7. What is Sex-linked Inheritance ? Explain it w.r.t. Eye color in Drosophila.
8. Explain briefly about Klinefelter's Syndrome.
9. Write a brief note on Sex-determination in Bonelia.
10. Sketch and label Salivary Gland Chromosome and add a brief note on it.
11. What is Dominant Epistasis ? Explain it by taking suitable example.
12. If Father is Codominant "AB" and mother is also Codominant "AB", what are the possible blood groups of their offsprings in F_1 generation ?

P.T.O.

PART - B

Answer **any two** of the following. **2x5=10**

13. Explain Eukaryotic m-RNA with neat labelled diagram.

14. Write a note on Lac-Operon Concept.

15. Define Genetic Engineering. Explain briefly about tools used in Genetic Engineering.

SECTION - C

PART - A

Answer **any two** of the following. **2x10=20**

16. Explain :

(a) XX-XY type of Sex determination in Drosophila.

(b) XX-XO type of Sex determination in Squash Bug.

17. Explain ABO system of Blood Group Testing in Human and add a note on its Genetic Significance.

18. Explain Law of Purity of Gamets by taking Pea plant as an example.

PART - B

Answer **any one** of the following. **1x10=10**

19. Describe the Double Helical model of DNA and add a note on its importance.

20. Define Protein Biosynthesis. Describe mechanism of Protein Biosynthesis in Prokaryotes.

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B.Sc. VI Semester Degree Examination, September/October - 2023

ZOOLOGY - VII

Z-6.2 : Ethology Evolution and Zoogeography

(CBCS)

100682

Time : 3 Hours | Maximum Marks : 70

Note : *(i) Answer **all** the sections.*

(ii) Draw diagrams wherever necessary.

SECTION - A

Answer **any five** of the following. **5x2=10**

1. What is Trophollaxis ? Give example.
2. Define Gene frequency and Genetic drift.
3. What are Homologous organs ? Give example.
4. Define Ethology. Who coined the term Ethology ?
5. What are Barriers ?
6. Define Nuptial flight. Give example.

SECTION - B

A. Write a short note on **any four** of the following. **4x5=20**

7. Briefly explain about the social organization in Honeybee.
8. Give an account of the Pavlov experiment on dogs for conditional reflex.
9. Write a short note on Anadromous migration with example.
10. Describe the causes and advantages of migration in Birds.
11. Briefly explain the courtship behaviour in Scorpion and Jacana.
12. Explain briefly about the Warning and Aggressive mimicry with suitable examples.

B. Answer **any two** of the following. **2x5=10**

13. Describe the barriers of Animal distribution.
14. Explain briefly about the mechanism of speciation.
15. Describe the principles of Hugo Devries theory of Evolution.

P.T.O.

SECTION - C

A. Answer **any two** of the following. **2x10=20**

16. Explain the detail account of insight learning with examples.

17. Describe the different kinds of Parental care in Amphibia with examples.

18. Explain in detail about the Principles of courtship behaviour with suitable examples.

B. Answer **any one** of the following. **1x10=10**

19. Explain the detail account of the principles of Darwinism.

20. Give a detailed note on Anatomical evidences in favour of organic evolution.

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