**PART - III**

**BIOLOGY**

(Urdu & English Versions)

**Register Number**

No. of Printed Pages : 15

Time Allowed : 3 Hours  

Maximum Marks : 150

*Instructions:*

1. Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately.

2. Use Blue or Black ink to write and underline and pencil to draw diagrams.

*Note:*

- Candidate should answer **Part - I (Botany)** & **Part - II (Zoology)** in separate answer-books.

**PART - I (BOTANY)**

(Marks : 75)  

**SECTION - A/A-**

14x1=14

1. **Lots:***

   (i) [Question]

   (ii) [Question]

*Note:*

(i) Answer all the questions.

(ii) Choose the most suitable answer from the given four alternatives and write the option code and corresponding answer.
1. How many families were described by Bentham and Hooker in their classification?
(a) 204  (b) 212  (c) 202  (d) 102

2. Polyadelphous stamens are seen in:
(a) Datura metal  (b) Ricinus communis  (c) Hibiscus rosa-sinensis  (d) Musa paradisiaca

3. The inflorescence in Withania somnifera is:
(a) axillary cyme  (b) scorpoid cyme  (c) helicoid cyme  (d) umbellate cyme

4. The hypodermis of Helianthus consists of:
(a) Lamellar collenchyma  (b) Sclerenchyma  (c) Angular collenchyma  (d) Lacunate collenchyma
The polyarch condition is found in:
(a) monocot leaf  (b) dicot leaf
(c) dicot stem  (d) monocot root

In Lathyrus odoratus the repulsion test cross ratio is:
(a) 1 : 1 : 1 : 1  (b) 1 : 7 : 7 : 1  (c) 7 : 1 : 1 : 7  (d) 9 : 3 : 3 : 1

Trisomy is represented by:
(a) 2n + 1  (b) 2n + 2  (c) 2n + 2  (d) 2n − 2

The biodegradable plastic produced by mouse-eared cress is:
(a) polyethylene glycol  (b) polyhydroxybutyrate
(c) phosphoric ethane  (d) endotoxin
Pseudomonas putida is an engineered bacterium that can:

(a) produce a hormone  (b) produce a antibiotic  
(c) digest crude oil slick  (d) carbohydrate

In the dark reaction of photosynthesis, CO$_2$ fixation is catalysed by:

(a) RuBP carboxylase  (b) PGA kinase  
(c) dehydrogenase  (d) PEP carboxylase

Dimorphic chloroplasts are found in this plant:

(a) Maize  (b) Potato  (c) Rice  (d) Wheat

Respiratory quotient of glucose is:

(a) zero  (b) unity  
(c) more than one  (d) less than one
Which is the secondary host plant of Pyricularia oryzae?
(a) Oryza sativa    (b) Digitaria marginata
(c) Arachis hypogea  (d) Citrus plant

The strongest pain killer obtained from Papaver somniferum is:
(a) Quinine  (b) Morphine  (c) Digoxin  (d) Ephedrine

SECTION - B

7 x 3 = 21
Note: Answer any seven questions.

Write the systematic position of Solanaceae.

What is cladode? Give an example.

Draw diagram of angular collenchyma and label the parts.

What is an eustele?
Draw the diagram of polytene chromosome and label the parts.

What is meant by bio-remediation?

Write the differences between photorespiration and Dark respiration.

Define Respiratory quotient.

What are the advantages of vernalization?

Define bio-medicine.

SECTION - C / C-

4x5=20

Note: (i) Answer any four questions including Question No. 25 which is compulsory.
(ii) Draw diagrams wherever necessary.

Write the economic importance of members of Musaceae.

Write short notes on tracheids.
Write short notes on the structure of tRNA.

What is SCP? What are the uses of SCP?

What are the differences between cyclic and non-cyclic photophosphorylation?

Write short notes on the physiological effects of cytokinin.

Write any five economic importance of cotton.

SECTION - D/D

2x10=20

Note:
(i) Answer any two questions.
(ii) Draw diagrams wherever necessary.

Describe Hibiscus rosa-sinensis in botanical terms.

Write the anatomical differences between dicot stem and monocot stem.
Write an essay on DNA recombinant technology.

Write an account on glycolysis.
(Explanation or flow chart)

PART - II (ZOOLOGY) / (حیاتیات)
(Marks : 75) / (مارکس : 75)

SECTION - A / A

16x1=16

Note :
(i) Answer all the questions.
(ii) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer.

1. In a newborn child the water content is ________ of body weight.
   (a) 80 - 90%  (b) 55 - 60%  (c) 71 - 78%  (d) 80 - 95%

2. Which type of WBC responds towards allergic condition?
   (a) Neutrophil  (b) Thrombocyte  (c) Eosinophil  (d) T lymphocyte
This region provides a relaxed feeling:

(a) Diencephalon  (b) Thalamus
(c) Infundibulum  (d) Hypothalamus

Which hormone reduces serum cholesterol?

(a) Growth hormone  (b) Thyroxine
(c) Parathormone  (d) Insulin

Name the protozoan which is associated with diarrhoea in children.

(a) Giardia intestinalis  (b) Trichomonads
(c) Leishmania donovani  (d) Leishmania tropica
Which of the following immunodeficiency diseases is caused by gene mutation?
(a) Severe combined immunodeficiency
(b) AIDS
(c) Huntington Chorea
(d) Albinism

The medicine which stops mitosis at metaphase:
(a) Colchicine
(b) ampicillin
(c) Turk's solution
(d) phytohaemagglutinin

Whose findings paved the way for immunization therapy?
(a) Louis Pasteur
(b) Robert Koch
(c) Joseph Lister
(d) Alexander Fleming
9. Which is considered as a highest milk yielder, per lactation period?
   (a) Gir   (b) Ongole   (c) Sindhi   (d) Karan Swiss

10. Which one of the following fuel has highest thermodynamic energy conversion efficiency?
    (a) Biogas   (b) Diesel   (c) Coal   (d) Hydrogen

11. What is the name for mobile genetic elements?
    (a) plasmids   (b) pili   (c) barr body   (d) transposons

12. Which one of the following is not an English breed of fowl?
    (a) Wyandotte   (b) Sussex   (c) Australorp   (d) Corinsh

13. The scientist who established the connection between sickle cell anaemia and malaria:
    (a) Charles Darwin   (b) August Weismann   (c) Allison   (d) Lamark
14. Which one of the following viruses has a dumbbell shaped nucleoid surrounded by two membrane layers?

(a) Pox virus  (b) Rabies virus
(c) Cancer virus  (d) Hepatitis-B virus

15. The gas which traps more heat than all other greenhouse gases.

(a) Chlorofluorocarbons  (b) Hydrocarbons
(c) Freon gases  (d) Trifluoromethyl sulphur penta fluoride

16. Which one of the following medical instrument indicates the fluid in lungs in case of pneumonia and pulmonary edema?

(a) Sphygmomanometer  (b) Stethoscope
(c) Electrocardiogram  (d) Haemocytometer
SECTION - B

Note: Answer any eight questions.

17. What is founder principle?

18. Differentiate CT Scan with Magnetic Resonance Imaging (MRI).

19. What are the control measures of cow pox?

20. How is the National biodiversity action plan executed?

21. What are stem cells? How can the genes be delivered in this cell?

22. List out the new concepts formed during post-Mendelian period.

23. Define Proteomics.

24. What is anaphylaxis?

25. What does the term 'antibiotic' refer to?
How does stem cell therapy bring solution for graft rejection problem?

What is called Sensorineural hearing loss?

What is Peritonitis?

SECTION - C / C

Note: Answer any three questions including question no. 31 which is compulsory.

Explain origin and conduction of heart beat.

Write a note on control and preventive measures of AIDS.

Draw a labelled diagram of immunoglobulin molecule. Explain the two major regions of immunoglobulin polypeptide chain.

What is cloning? Explain it with example.

Explain the role of mutation in Evolution.
SECTION - D / D

Note : Answer any two questions.

34. Explain the causes, symptoms and treatment of dental caries.

35. Comment on various schemes suggested by the National Family Welfare Programmes and their importance.

36. Explain the significance of Bioremediation recycling and reuse methods in waste management.

37. Explain in detail about the instrument of Haemocytometer and its clinical significance.