

Roll No. [REDACTED] be filled in by the candidate

(For All Sessions)

**Biology (Objective)** *Rwp-12-1-23* (Group-I)

Time: 20 Minutes Marks : 17

Note: Write Answers to the Questions on the objective answer sheet provided. Four possible answers A, B, C and D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with Marker or Pen ink on the answer sheet provided.

1.1. The only excretory structures in animal kingdom that are associated with digestive tract are called:

- (A) Kidneys (B) Flame cells (C) Malpighian Tubules (D) Metnephridia

2. The number of lumbar vertebrae in human is:

- (A) Five (B) Nine (C) Two (D) Seven

3. Bone forming cells are called:

- (A) Osteocytes (B) Osteoclasts (C) Chondroblasts (D) Osteoblasts

4. Sensation of pain is produced by:

- (A) Photoreceptors (B) Nociceptors (C) Thermo receptors (D) Chemo receptors

5. Which of the following do not help in coordination:

- (A) Receptors (B) Effectors (C) Neuroglia (D) Neurons

6. Parthenocarpy is the development of fruit without:

- (A) Fertilization (B) Pollination (C) Germination (D) Hormones

7. The loss of memory and white hairs comes under:

- (A) Meratology (B) Teratology (C) Regeneration (D) Gerontology

8. Which of the following is not non-sense codon:

- (A) UGA (B) AUG (C) UAG (D) UAA

9. Central dogma is used for \_\_\_\_\_ in all organisms.

- (A) Behavioral expression (B) Gene depression (C) Necrosis (D) Gene expression

10. Short stature, webbed neck and without ovaries are related to:

- (A) 44 autosomes + X (B) 2n+1 (C) 44 autosomes + XXY (D) 23+XY

11. Which of the following is not hereditary disease:

- (A) Diabetes mellitus (B) Hemophilia (C) Malaria (D) Color blindness

12. In tissue culture enzymes are used to digest the:

- (A) Chloroplast (B) Cell wall (C) Vacuole (D) Cell membrane

13. For the entry of DNA, high voltage electric pulses are applied for making pores in:

- (A) Plasma membrane (B) DNA (C) Cytoplasm (D) Cell wall

14. In certain areas, such as Ecuador forests coverage has reduced by:

- (A) 100% (B) 50% (C) 30% (D) 95%

15. Which is not abiotic component:

- (A) Water (B) Plant (C) Light (D) Air

16. The zone in lake where light is insufficient to support photosynthesis is called:

- (A) Profundal (B) Littoral (C) Limnetic (D) Shallow

17. Stone monuments like "Taj Mahal" are being eroded due to stone cancer by:

- (A) Eutrophication (B) Radiation (C) Acid rain (D) Air

## SECTION-I

Rwp-12-1-23

2. Write short answers of any eight parts from the following:

(8x2=16)

- Name plasma proteins synthesized by liver. Also write their functions.
- Differentiate between peritoneal and hemodialysis.
- Why leaves are said to be excretophores?
- What are the skeletal deformities because of genetic causes?
- Draw the labeled diagram of a sarcomere.
- How can you differentiate between tetany and tetanus?
- How vernalization is beneficial for plants?
- Compare oviparous with viviparous.
- What type of organisms are present in Limnetic zone of a lake ecosystem?
- How many deserts are in Pakistan? Write their names and location.
- Why the trees are called environmental buffers?
- How is ozone layer being depleted?

3. Write short answers of any eight parts from the following:

(8x2=16)

- Why AB Blood group is universal recipient?
- What is the role of recombination frequency?
- Why Haemophilia A is more common in males than females?
- What is the role of thyroxine?
- Differentiate between Meissner's corpuscles and Pacinian corpuscles.
- What are the Similarities between nervous and chemical coordination?
- What are the advantages of transgenic Bacteria?
- How many possible ways to get the gene of interest?
- Differentiate between ex-vivo and in-vivo gene therapy.
- Why is a biosphere absent on moon?
- What is the importance of food web?
- How succession act as community relay?

4. Write short answers of any six parts from the following:

(6x2=12)

- Why is growth pattern in plants called "open growth"?
- Why is cleavage pattern in chick called "Discoidal Cleavage"?
- Mention the types of chromosomes depending upon the location of centromere.
- Define semi-conservative hypothesis of DNA replication.
- What is the critical change in gene that leads to sickle cell disease?
- What is mitotic apparatus?
- Write any two importances of meiosis.
- What is theory of special creation?
- Define gene pool.

## SECTION-II

Note Attempt any three questions. Each question carries equal marks:

(8x3=24)

- Describe major homeostatic functions of liver. 4
  - What is cell cycle? Diagrammatically mention its different stages. 4
- Write some major functions of skeletal system. 4
  - Define Xerosere, describe its various stages. 4
- How is resting membrane potential replaced by action membrane potential across neurolemma? Explain all the factors in this replacement. 4
  - Discuss the evidences of evolution from comparative embryology and molecular biology. 2+2=4
- Explain different physiological and structural changes occurring during the process of birth in human being females. 4
  - Define probability. Derive 9:3:3:1 ratio of independent assortment through product rule. 4
- Describe the phases of growth in plants. 4
  - Explain the importance of transgenic plants.