Roll No._____ (To be filled in by candidate)

| Paper Code | 4 | 4 | 6 | 1 |
|---|---|---|---|---|

**Sessions;2015-2017 & 2016-2018**

# Biology (Objective Type)

Rwp-12-18

**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. A dilute solution compared to cell concentration is termed as:
(A) Hypertonic (B) Hypotonic (C) Isotonic (D) Paratonic

2. Number of $NH_3$ molecules required to produce one molecule of urea is:
(A) 1 (B) 2 (C) 3 (D) 4

3. The bone which provides attachment site for muscles is:
(A) Compact bone (B) Spongy bone (C) Cartilage (D) Hip bone

4. Which one is not a joint disease?
(A) Arthritis (B) Sciatica (C) disc slip (D) Spondylosis

5. Vehicle for transport of male gamete in land plants is:
(A) Water (B) Pollen tube (C) Pollen grain (D) Wind

6. Reproduction is necessary for the survival of:
(A) Individual (B) Species (C) Population (D) Community

7. Apoptosis is:
(A) Division of cells (B) Death of cells by tissue demage
(C) Suicide of cells (D) Weakness of cells

8. Cell cycle involves:
(A) growth of cell (B) replication of DNA
(C) Cell division (D) growth of cell , replication of DNA and cell division

9. Resting membrane potential of a neuron is:
(A) -50mV (B) -60mV (C) -70mV (D) -80mV

10. Optimum temperature for growth of plants is:
(A) 30--40°C (B) 25--30°C (C) 10--20°C (D) 5--10°C

11. Particular array of chromosomes that an individual possesses is called:
(A) Holotype (B) Karyotype (C) Neotype (D) Paratype

12. All the genes found in a breeding population constitute:
(A) genotype (B) Genome (C) Gene frequency (D) Gene pool

13. Primer for PCR contains about:
(A) 05 bases (B) 10--20 bases (C) 30 bases (D) 40 bases

14. Archaebacteria can tolerate temperature:
(A) 45°C (B) 85°C (C) 100°C (D) 120°C

15. Biome is a large:
(A) Simple community (B) Complex community (C) Regional community (D) Climax community

16. Desert ecosystem of Mianwali and Bhakkar is called:
(A) Thal (B) Thar (C) Cholistan (D) Sahara

17. Treasure of all type of resources is:
(A) Weather (B) Climate (C) Environment (D) Water

Roll No._____(to be filled in by the candidate)

Sessions: 2015-2017 & 2016-2018

# Biology (Essay Type)

Rwp-12-18

**Time: 2:40 Hours** **Marks: 68**

## Section - I

**2. Write short answers of any eight parts from the following.** **2x8=16**

i. What is blubber and in which animals is it found?
ii. Differentiate between osmoregulation and thermoregulation.
iii. What is Pyrexia?
iv. How does digitigrade differ from unguligrade?
v. What is bail and socket joint?
vi. Define remodeling.
vii. Give two examples of short day plant.
viii. Write cause and symptoms of syphilis.
ix. Give types of organisms present in profundal zone.
x. Name different zones of fresh water lakes.
xi. What is fossil fuel?
xii. Define demography.

**3. Write short answers of any eight parts from the following.** **2x8=16**

i. What is reflex action?
ii. Differentiate between thermoreceptors and nociceptors.
iii. Define succession and give one example
iv. Differentiate between genotype and phenotype.
v. What is a test cross? Who devised it?
vi. Differentiate between co-dominance and over-dominance.
vii. What are restriction enzymes? Who first isolated them?
viii. What are transgenic bacteria?
ix. What is gene therapy? How cancer cells are killed by gene therapy?
x. Differentiate between biosphere and Niche.
xi. What are abiotic components of an ecosystem? Give examples.
xii. Differentiate between action membrane potential and resting membrane potential.

**4. Write short answers of any six parts from the following.** **2x6=12**

i. Write down the role of temperature as an external factor in plant growth.
ii. What role is played by clear cytoplasm and yellow cytoplasm in animal development?
iii. How many chromosomes are found in sugercane and mouse?
iv. Define translation.
v. What is the difference between R, and S, type of bacteria?
vi. What are the events of S-Phase?
vii. Write down the events of metaphase of mitosis.
viii. How does genetic drift effect the gene frequency?
ix. Write the names of four extinct species of animals in Pakistan.

## Section - II

**NOTE: Answer any three questions from the following.** **8x3=24**

5. **(a)** Describe food web in detail. Also draw the diagram. 4
   **(b)** Describe the process of concentration of excretory products in human nephron. 4
6. **(a)** Discuss deformities of skeleton due to genetic and hormonal causes. 4
   **(b)** Describe Frederick Griffith's experiment. 4
7. **(a)** What are receptors? Describe its types. 4
   **(b)** Describe importance of forests. 4
8. **(a)** Write a note on sexually transmitted disease. 4
   **(b)** Define and discuss Test Cross. 4
9. **(a)** Describe role of nucleus in development. 4
   **(b)** Describe non-random rating and selection as factors affecting gene frequency. 4