

**Biology (Objective)**

(Group-II)

Rwp-12-2-23

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. Which of the following is not a heterotherm?
 

(A) Bat	(B) Humming bird	(C) Duckbilled Platypus	(D) Flying bird
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2. The inactive, non conducting wood is called:
 

(A) Heartwood	(B) Sapwood	(C) Secondary Phloem	(D) Primary Xylem
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3. Total number of facial bones is:
 

(A) 22	(B) 14	(C) 12	(D) 16
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4. Which of the following is wrong statement?
 

(A) Adrenaline releases glucose from liver glycogen	(B) Non-adrenaline releases glucose from liver glycogen	(C) Sympathetic system is reinforced by epinephrine and nor-epinephrine	(D) Pupil dilates by parasympathetic system
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5. Etiolated plants possess:
 

(A) No chlorophyll	(B) Chlorosis	(C) Insufficient chlorophyll	(D) Higher chlorophyll
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6. Fruit set means:
 

(A) Retention of seed	(B) Retention of fruit	(C) Retention of ovary	(D) Pregnancy
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7. Which of the following is responsible for secondary growth in plants?
 

(A) Lateral meristem	(B) Vascular cambium	(C) Cork cambium	(D) All A, B & C
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8. Helix of DNA has diameter:
 

(A) 2 nm	(B) 2 $\mu$ m	(C) 2.3 nm	(D) 3.4 nm
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9. The semi conservative replication model predicted by Watson and Crick was confirmed by:
 

(A) Meselson & Stahl	(B) Hershey & Chase	(C) Vernon Ingram	(D) Fredrick Sanger
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10. Crossing over takes place during:
 

(A) Zygotene	(B) Pachytene	(C) Diplotene	(D) Diakinesis
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11. Which chromosome carries gene for leukemia?
 

(A) Chromosome 9	(B) X-chromosome	(C) Chromosome 19	(D) Chromosome 11
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12. Which of the following bio-technology product has been produced in mammalian milk?
 

(A) Hemophilia factor VIII	(B) Insulin	(C) Anti-Thrombin III	(D) Human growth hormone
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13. The gene for Retinitis pigmentosa is present on:
 

(A) X-chromosome	(B) Y-chromosome	(C) Chromosome 7	(D) Chromosome 11
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14. Alzheimer is a/an:
 

(A) Nutritional disease	(B) Hormonal disease	(C) Mental disorder	(D) Physical disease
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15. The first photosynthetic organism probably used \_\_\_\_\_ for reducing CO<sub>2</sub> to sugars.
 

(A) Pentose sugars	(B) Hydrogen sulfide	(C) Hydrogen carbide	(D) Both A & B
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16. Solar energy used for evaporation of water and heating up soil is about:
 

(A) 90%	(B) 1%	(C) 99%	(D) 95%
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17. Which of the following statement is false:
 

(A) 11% of the total area of the world is under cultivation	(B) 2% of water is in the form of frozen ice	(C) An area having less than 10 to 20 inches rains is called desert	(D) Early man was first a secondary consumer
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Biology (Subjective)

(For All Sessions)  
(GROUP-II)

Time: 2:40 hours

Rwp-12-2-23

## SECTION-I

2. Write short answers of any eight parts from the following: (8x2=16)
- Skin does not come within the definition of excretory organ, comment.
  - Differentiate between Endotherms and ectotherms.
  - How is Osmoregulation done in Hypotonic and Hypertonic environment?
  - What is difference between tetanus and muscle tetany?
  - What is the role of ATP in muscle fatigue?
  - How is Turgor pressure generated?
  - Define diplohaplontic life cycle.
  - What is the role of non-disjunction in diploid parthenogenesis?
  - Write the names of four major ecosystems on land in Pakistan.
  - Differentiate between phytoplanktons and zooplanktons.
  - What do you know about hydroelectric power?
  - Mention any four ways in which we can save energy.
3. Write short answers of any eight parts from the following: (8x2=16)
- Why birth control pills contain progesterone?
  - How pancreas help humans as an endocrine gland?
  - Why iodine is added into the table salt?
  - How protanopia, deuteranopia and tritanopia are differentiated?
  - What is pleiotropy? Give two examples.
  - Define epistasis and how it is confused with dominance?
  - How genetic engineers produce a salt tolerant plant Arabidopsis?
  - What are transgenic plants?
  - How cancer is treated through gene therapy?
  - How certain fungi are crucial for higher plants in acidic soils?
  - Describe the role played by bacteria in nitrogen cycle.
  - How food web is more stable than food chain?
4. Write short answers of any six parts from the following: (6x2=12)
- Highlight the role of morphogenetic determinant during development of an individual.
  - What is discoidal cleavage?
  - Differentiate between sense strand and antisense strand of DNA.
  - How mRNA in eukaryotic cell remain protected from nucleases and phosphatases?
  - Where codon and anticodon are situated?
  - Differentiate between necrosis and apoptosis.
  - How cytokinesis occurs in plants?
  - What are endangered species? Give two examples from Pakistan.
  - What are Hydrothermal vents?

## SECTION-II

- Note Attempt any three questions. Each question carries equal marks: (8x3=24)
- (a) Describe thermal regulatory strategies in mammals including humans in cold temperature. 4  
(b) Define Meiosis? Explain Meiotic – 1st, with diagram. 4
  - (a) Explain appendicular skeleton of mammals. 4  
(b) Describe nitrogen cycle. 4
  - (a) Describe how a controlling mechanism is itself controlled by products of a reaction by giving an example? 4  
(b) Describe different factors which effect the gene frequency of a population. 4
  - (a) What are placenta, write the functions of placenta during pregnancy. 4  
(b) Define Mendel's law of segregation. Explain it with an example. 4
  - (a) Highlight the role of external environmental factors in controlling the growth in plants. 4