

Warning:- Please, do not write anything on this question paper except your Roll No.

1224 (Inter Part – II)

(Session 2020-22 to 2022-24)

Roll No-----

Biology (Objective)

Paper (II) Group I

Sig. of Student -----

Time Allowed:- 20 minutes

PAPER CODE 4461

Maximum Marks:- 17

SGD-1-24

Note:- You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Write **PAPER CODE**, which is printed on this question paper, on the both sides of the Answer Sheet and fill bubbles accordingly, otherwise the student will be responsible for the situation. Use of Ink Remover or white correcting fluid is not allowed.

Q.1

1. Bilirubin is a metabolic waste formed as a result of _____ breakdown.
(A) Nucliec acids (B) Hemoglobin (C) Purine bases (D) Creatinine
2. Tetanus is caused by _____
(A) Low Blood Ca⁺² level (B) Virus (C) Protozoa (D) Bacteria
3. Slightly elastic connective tissue that holds the Bones together is called.
(A) Ligament (B) Z-lines (C) Cross bridges (D) Tendon
4. The form of learning that involves diminution in response as a result of repeated stimuli.
(A) Imprinting (B) Latent learning (C) Insight learning (D) Habituation.
5. Plants become etiolated when grown without
(A) Light (B) Water (C) Soil (D) Air
6. Which one of these hormone is not related to ovarian cycle?
(A) LH (B) Estrogen (C) Oxytocin (D) Progesterone
7. During ascidian development, gut is formed by _____ cytoplasm.
(A) Gray vegetal (B) Clear (C) Yellow (D) Gray aquatorial
8. Chromosomes were discovered by _____ in 1882.
(A) Walther flemming (B) W. Sutton (C) Ervin Charagaff (D) Rosalind Franklin
9. In Okazaki fragments range from 1000-2000 nucleotides
(A) Bacteria (B) Viruses (C) Prions (D) Human
10. In human cell cycle, _____ takes the least time to complete.
(A) M-Phase (B) G₂-Phase (C) S-Phase (D) G₁-Phase
11. Red color blindness is also known as
(A) Tritanopia (B) Protranopia (C) Deutranopia (D) Tetranopia
12. Recombinant DNA is introduced into the host cell by means of a
(A) Bacterium (B) Fungus (C) Vector (D) Fruitfly
13. Antithrombin-III is biotechnological product produced in
(A) Goats (B) Cow (C) Mice (D) Bacteria
14. Which one of these is the ultimate source of all changes.
(A) Migration (B) Non-random mating (C) Mutation (D) Genetic drift
15. Third stage of xerosere is known as
(A) Moss stage (B) Shrub stage (C) Crustose lichen stage (D) Herb stage
16. Macaca mulatta is biological name of
(A) Black bear (B) Tiger (C) Rhesus monkey (D) Leopard cat
17. Which one of these is non-renewable source of energy on earth?
(A) Wind (B) Geothermal (C) Fossil fuels (D) Sun

1237 -- 1224 -- 7500 (1)

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1224 (Inter Part-II)

Biology (Subjective)

SGD-1-24

(Group I)

(Session 2020-22 to 2022-24)

Time Allowed: 2.40 hours

Section ----- I

Paper (II)

Maximum Marks: 68

$8 \times 2 = 16$

2. Answer briefly any Eight parts from the followings:-
- On a cool day a human's temperature may be several degrees lower in arms and legs as compared to trunk, why?
 - Write structural formula of Urea and Uric Acid. (iii) Is liver a major homeostatic organ? Justify in few lines.
 - Why calcium ions are basic requirement for muscle contraction?
 - How is turgor pressure built in a plant cell?
 - What do you understand by antagonistic arrangement of muscles? Give example.
 - How is reproduction significant for the survival of a species?
 - Suggest a remedy for the parents which are unable to enjoy normal process of fertilization and birth.
 - What do you understand by the productivity of an aquatic ecosystem?
 - What was the reason of desertification in Sahel at southern edge of Sahara desert?
 - How can we minimize the effects of energy shortage?
 - What do you understand by the term "Global warming"?

3. Answer briefly any Eight parts from the followings:-

$8 \times 2 = 16$

- Describe the structure of spinal cord. (ii) Differentiate between somatic and autonomic nervous system.
- Give some differences between etiolation chlorosis.
- What happens when a human is given wrong blood transfusion?
- What pattern of sex-determination is found in grasshopper? Elaborate.
- Describe sexual dimorphism in drosophila. (vii) Is it possible to extract metals from low graded ores using Biotechnology? How?
- How a suspected rapist can be identified? (ix) What are molecular scissors? Give examples.
- What is commensalism? Give example. (xi) What is denitrification? Write its impact.
- Differentiate between habitat and niche.

4. Answer briefly any Six parts from the followings:-

$6 \times 2 = 12$

- How is a blastula formed in a developing chick embryo?
- Define Teratology. Enlist any two causes of abnormal development.
- What will happen to replication of DNA, if primase is not present.
- Where codon and anticodon are situated. (v) How is translation terminated?
- How do Karyokinesis and cytokinesis phases of cell division differ?
- Enlist four important functions of Mitosis. (viii) What is genetic drift? How does it affects gene frequency?
- How artificial selection is different from natural selection.

Section ----- II

Note: Attempt any three questions.

$(8 \times 3 = 24)$

- (a) What are Nephrons? Explain with the help of labelled diagram?
(b) Explain various stages of Prophase I.
- (a) Define tropic movements. Explain its different types.
(b) How energy flows in Food Chain of an ecosystem.
- (a) What is feed back mechanism? Explain with the help of an example.
(b) Define and explain Hardy Weinberg theorem.
- (a) Explain in detail the process of birth in human female.
(b) What are sex-chromosomes? Discuss the chromosomal patterns of sex determination in animals.
- (a) Define meristems? Discuss their various types?
(b) What is gene therapy, Give its types and Explain in which disease ex-vivo-gene therapy is needed?

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1224 (Inter Part – II) (Session 2020-22 to 2022-24) Roll No-----

Biology (Objective) (Group 2nd) Paper (II) Sig. of Student -----

Time Allowed:- 20 minutes PAPER CODE 4466 Maximum Marks:- 17

Note:- You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Write PAPER CODE, which is printed on this question paper, on the both sides of the Answer Sheet and fill bubbles accordingly, otherwise the student will be responsible for the situation. Use of Ink Remover or white correcting fluid is not allowed.

Q.1

- In which zone of Lake ecosystem, light does not penetrate? up to the bottom.
(A) Littoral Zone (B) Limnetic Zone (C) Both Littoral and Limnetic (D) Profundal Zone
- The natural heat energy trapped under ground is called
(A) Geothermal energy (B) Fossil fuels (C) Nuclear energy (D) Tidal Power
- An animal living in fresh water is more likely to excrete its waste nitrogen in the form of
(A) Ammonia (B) Urea (C) Uric Acid (D) Creatinine
- Locomotory structures found in star fish are
(A) Setae (B) Tube feet (C) Foot (D) Wings
- Presence of irregular stripes is the character of which type of Muscles?
(A) Smooth (B) Skeletal (C) Cardiac (D) Both 'B' and 'C'
- Which growth hormone can be sprayed on the tree crops to regulate fruit drop at the end of the season?
(A) Auxins (B) Abscisic Acid (C) Ethene (D) Cytokinins
- An individual has exophthalmic goiter and abnormally high basal metabolic rate, is more likely to be suffering from
(A) Low thyroxine production (B) Excessive thyroxine production (C) Cretinism (D) Myxedema
- Which hormones are secreted by Mammalian Placenta?
(A) Estrogen and Prolactin (B) Progesterone and Lactogen (C) Progesterone and oxytocin (D) Estrogen and oxytocin
- In which phase of Animal development migration and rearrangement of cells occur to form three germ layers.
(A) Gastrulation (B) Cleavage (C) Organogenesis (D) Growth
- What is the role of enzyme DNA ligase during DNA replication?
(A) Synthesis of primer (B) Recognition of the primer (C) Attachment of okazaki fragments (D) Proof reading
- Enzyme Amino acyl tRNA synthetase has an important role during Translation.
(A) Binding of a specific amino acid to a particular tRNA (B) Formation of initiation complex (C) Elongation of polypeptide chain (D) Termination of translation
- Which phase of mitosis ensures equal distribution of chromosomes in the daughter cells?
(A) Prophase (B) Metaphase (C) Anaphase (D) Telophase
- A colour blind man is married to normal female, what is the risk of colour blind child in this family?
(A) 50% (B) 25% (C) Zero% (D) 100%
- During DNA finger printing, unique collection of various sized DNA fragments, can be obtained by
(A) Treating genome with restriction enzymes (B) Gel electrophoresis (C) Treating with Probes (D) Denaturing DNA by heat
- In Recombinant DNA technology, Bacterial cells can be made more permeable for recombinant plasmids after treating with
(A) Sodium chloride (B) Calcium chloride (C) Potassium Chloride (D) Magnesium Chloride
- One of the following is not related to Darwinism.
(A) Inheritance of acquired characters (B) Over production (C) Struggle for survival (D) Survival of fittest
- The relationship between insects and flowering plants, is an example of
(A) Commensalism (B) Parasitism (C) Mutualism (D) Predation

1239 -- 1224 -- 7500 (3)

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1224(Inter Part-II)

(Session 2020-22 to 2022-24)

Biology (Subjective)

(Group 2nd)

Paper (II)

Time Allowed: 2.40 hours

Section ----- I

SGD-2-24 Maximum Marks: 68

2. Answer briefly any Eight parts from the followings:- $8 \times 2 = 16$
- (i) How plants of cold regions repond to freezing temperatures?(ii)What is shivering thermogenesis?
 - (iii) Differentiate vasodilation from vasoconstriction. (iv) What are unguigrade animals?
 - (v) How locomotion occurs in snail? (vi) Define muscle fatigue.
 - (vii) Give importance of seed dormancy. (viii) What are viviparous mammals? Give one example.
 - (ix) What are acid rains? Give two disadvantages of acid rains. (x) What is algal bloom?
 - (xi) Write down the importance of grassland ecosystem.
 - (xii) Where Tundra ecosystem exists in Pakistan?
3. Answer briefly any Eight parts from the followings:- $8 \times 2 = 16$
- (i) Differentiate between etiolation and chlorosis?
 - (ii) Write the distribution of pain and cold receptors on animal body?
 - (iii) Give the two commercial uses of Gibberellins? (iv) What is test cross? Also write its significance?
 - (v) Define pleiotropy? Give its two examples? (vi) Differentiate between gene linkage and linkage group?
 - (vii) Write two uses of PCR amplification and Ananalysis?
 - (viii) What are restriction endonucleases? Give their function?
 - (ix) Give the biotechnological uses of bacteria in mining? (x) Define climax community with example?
 - (xi) Differentiate between ectoparasite and endoparasite. (xii) Discuss the role of decomposers in ecosystem?
4. Answer briefly any Six parts from the followings:- $6 \times 2 = 12$
- (i) Define growth and embryonic development.
 - (ii) Write the role of clear and yellow cytoplasm in development.
 - (iii) What are okazaki fragments? In which strand they are formed?
 - (iv) Name the single ring nitrogen bases, also draw it.
 - (v) Name transforming principle, also define term transformation.
 - (vi) Name Trisomic Sexual non-disjunction in your Text book, Give two symptoms.
 - (vii) Why and how chromosome number is halved by Meiosis. (viii) What are Analogous organs, Give one example?
 - (ix) Write two preventive measures to save endangered species.

Section ----- II

Note: Attempt any three questions.

$(8 \times 3 = 24)$

- 5.(a) Describe the structure of nephron with labeled diagram.
- (b) Write a detailed note on cancer.
- 6.(a) How does healing process proceed when a bone is broken in an accident?
- (b) Define succession. Explain all stages of Xerosere.
- 7.(a) Explain factors which affect gene frequency.
- (b) Describe the endocrine and neural functions of hypothalamus. (two each)
- 8.(a) What structure are associated with human female reproductive system.
Also write their function.
- (b) State Law of Segregation prove it with one suitable example.
- 9.(a) How would you describe the process of growth correlations in plants?
- (b) What is the methodology used for expression of Recombinant DNA?

1240 -- 1224 -- 7500