

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) G_2 -Phase (C) S-Phase (D) G_1 -Phase
11. Red color blindness is also known as
 (A) Tritanopia (B) Protanopia (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

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

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

$8 \times 2 = 16$

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

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

$6 \times 2 = 12$

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

Section ----- II

Note: Attempt any three questions.

$(8 \times 3 = 24)$

- 5. (a) What are Nephrons? Explain with the help of labelled diagram?
- (b) Explain various stages of Prophase I.
- 6. (a) Define tropic movements. Explain its different types.
- (b) How energy flows in Food Chain of an ecosystem.
- 7. (a) What is feed back mechanism? Explain with the help of an example.
- (b) Define and explain Hardy Weinberg theorem.
- 8. (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.
- 9. (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?