

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

1223 ( Inter Part – II )

(Session 2019-21 to 2021-23)

Roll No-----

Biology (Objective)

Paper (II)

Group I

SGD-12-1-23 Sig. of Student -----

Time Allowed:- 20 minutes

**PAPER CODE 4461**

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

1. Which is not a Poikilotherm?  
(A) Invertebrates (B) Reptiles (C) Amphibians (D) Birds
2. Fibrous Tissue which connects two bones is called  
(A) Ligament (B) Muscle (C) Tendon (D) Connective Tissue
3. Posterior four vertebrae of pelvic region form  
(A) Sacrum (B) Coccyx (C) Pelvis (D) Pubis
4. Which type of Neuron have long axon?  
(A) Sensory Neuron (B) Motor Neuron (C) Associative Neuron (D) Intermediate Neuron
5. All are phases of menstrual cycle except  
(A) Menstruation (B) Secretory phase (C) Proliferative phase (D) Fertilization
6. In the zone of elongation, the volume of the cells increases up to =  
(A) 100 times (B) 150 times (C) 200 times (D) 250 times
7. Which neurotransmitter secreted at synapse outside the central nervous system:  
(A) Dopamine (B) Adrenaline (C) Serotonin (D) Acetylcholine
8. Which of the followings is required for joining okazaki fragments during DNA Replication?  
(A) DNA polymerase-I (B) DNA Ligase (C) DNA polymerase-III (D) RNA polymerase
9. Contraction of spindles occur during:  
(A) Prophase (B) Metaphase (C) Anaphase (D) Telophase
10. Anticodons are present on =  
(A) tRNA (B) mRNA (C) rRNA (D) DNA
11. Interaction between genes occupying different Loci is:  
(A) Dominance (B) Pleiotropy (C) Gene linkage (D) Epistasis
12. pSC 101 has antibiotic resistant gene for  
(A) Ampicillin (B) Streptomycin (C) Tetracycline (D) Penicillin
13. Patients of cystic fibrosis die due to numerous infections of the  
(A) Respiratory tract (B) Digestive tract (C) Excretory tract (D) Reproductive tract
14. Endosymbiont Hypothesis explains origin of  
(A) Bacteria (B) Prokaryotes (C) Armadillo (D) Eukaryotes
15. All the populations within an ecosystem are known as  
(A) Species (B) Food Web (C) Community (D) Pioneers
16. Coniferous forest located at high latitude are called  
(A) Boreal (B) Alpine (C) Taiga (D) Prairies
17. The decline in thickness of ozone layer is caused by increasing level of  
(A) Hydrocarbons (B) Nitrocarbons (C) Chlorofluorocarbons (D) Nitrogen oxide

1231 -- 1223 -- 7500 (1)

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

- |  |   |
|--|---|
| (i) What are the adaptations of xerophytes for Osmoregulation?                 | (ii) Differentiate b/w Osmoconformers and osmoregulators?                         |
| (iii) What is the role of ADH and aldosteron in Osmoregulation?                | (iv) Differentiate b/w collenchyma and sclerenchyma.                              |
| (v) Write the name of Bones of Cranium.  | (vi) What is the effect of exercise on Muscle?                                    |
| (vii) How is a seed formed?  | (viii) What is the role of corticosteroid in birth process?                       |
| (ix) What are the adaptations in plants and animals for terrestrial ecosystem? | (x) Compare the rain fall in Temperate deciduous forests and Grassland ecosystem. |
| (xi) What is the role of soil for plants and animals?                          | (xii) How we can save energy?   |

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

8 × 2 = 16

- |  |   |
|--|---|
| (i) Differentiate homozygous and heterozygous conditions.                              | (ii) Why is Pituitary anterior lobe referred to as Master gland?            |
| (iii) Define Habituation in terms of animal behaviour.                                 | (iv) What is sympathetic Nerve system?                                      |
| (v) Define Pleiotropy. Give one example.   | (vi) If recombination frequency is 20% then draw a gene map. (linkage map). |
| (vii) How is genomic library made?   | (viii) Give an application of Transgenic bacteria.                          |
| (ix) How did scientists produce a salt-tolerant plant?                                 | (x) Define Autecology.  |
| (xi) How do root nodular bacteria give and take benefits during symbiotic association? | (xii) Differentiate Macronutrients and Micronutrients.                      |

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

6 × 2 = 12

- |  |   |
|--|---|
| (i) What are teratogens? Give examples.  | (ii) Lateral buds in plants can be released from the effect of Apical bud. Comment on it. |
| (iii) Discuss the bondings which hold together two strands of DNA in double helix. | (iv) How two strands of DNA get synthesized during DNA replication?                       |
| (v) How RNA polymerase form Transcription bubble on a gene? Discuss it.            | (vi) What is Metastasis?  |
| (vii) Distinguish Apoptosis from Necrosis.   | (viii) What are vestigial organs? Give examples.  |
| (ix) Define Endosymbiont hypothesis.   |   |

Section ----- II

Note: Attempt any three questions.

(8 × 3 = 24)

5. (a) Draw Labelled diagram of vertebrate Nephron. State the function of each part.  
(b) Define mitosis, only explain its importance.
6. (a) Highlight the types of directional responses in plants which are caused due to external stimuli.  
(b) Define Xerosere. Describe the stages of Xerosere
7. (a) Explain how reflex action prevent body damage during emergency?  
(b) Define endangered species. Discuss causes of extinction and conservation plan.
8. (a) What is Diabetes mellitus? Explain its genetic basis.  
(b) Describe the human male reproductive system.
9. (a) Explain in detail the phenomenon of Growth Correlation with example.  
Write its commercial application.  
(b) Explain the process of polymerase chain reaction with the help of diagram.

SGD-12-2-23

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

1223 ( Inter Part – II )

(Session 2019-21 to 2021-23)

Roll No-----

Biology (Objective) (Group 2nd)

Paper (II)

Sig. of Student -----

Time Allowed:- 20 minutes

**PAPER CODE 4462**

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**

1. Fever causing substance is called.  
(A) Pyrogen (B) Pathogen (C) Poison (D) Pyrexia
2. Brain is protected by  
(A) Skull (B) Cranium (C) Orbit (D) Maxilla
3. Action of venus fly trap is:  
(A) Nyctinasty (B) Epinasty (C) Haptonasty (D) Hyponasty
4. Hormone that supresses ovulation is  
(A) Progestrone (B) Oestrogen (C) Gastrin (D) Testosterone
5. Fruit ripening is due to production of  
(A) Auxins (B) Cytokinins (C) Ethene (D) Gibberelins
6. Diploid parthenogenesis may occur in  
(A) Bees (B) Aphid (C) Wasp (D) Honey bee
7. Acetabularia is unicellular:  
(A) Alga (B) Fungus (C) Yeast (D) Protozoa

8. Initiation codes for every protein coding gene is AUG which encodes for  
(A) Leucine (B) Alanine (C) Methionine (D) Serine
9. Histone proteins combine with DNA to form a complex.  
(A) Kinetochore (B) Nucleosome (C) Chromatin (D) Chromatid
10. The S-phase of cell cycle takes  
(A) 10 hours (B) 9 hours (C) 4.5 hours (D) 1.30 hours
11. ABO blood group was discovered in:  
(A) 1903 (B) 1901 (C) 1900 (D) 1905
12. pSC 101 plasmid has antibiotic restriction gene for  
(A) Tetracycline (B) Ampiciline (C) Streptomycine (D) Penecillin
13. PCR technique was developed by  
(A) Sanger (B) Maxam (C) Kary B Mullis (D) Hamilton
14. Who Published an essay on "The principle of population"?  
(A) Malthus (B) Mendle (C) Darwin (D) Lamark
15. Lithosphere includes  
(A) Air (B) Water (C) Earth soil (D) Gases
16. In grassland ecosystem tropical climates have woody trees called.  
(A) Pampas (B) Savanna (C) Alpine (D) Prairies
17. Which of the following act as environmental buffer?  
(A) Forests (B) Oceans (C) Lakes (D) Deserts

**1231A -- 1223 -- 7500 (1)**

SAD-12-2-23  
(Group 2<sup>nd</sup>)

Section ----- I

8 × 2 = 16

2. Answer briefly any Eight parts from the followings:-
- (i) Write the metabolic waste products of amino acids and nucleic acids.
  - (ii) What are heterotherms? Give two examples. (iii) Give the role of Juxtamedullary nephrons.
  - (iv) Differentiate between Heartwood and Sapwood. (v) What is mutation.
  - (vi) What is ligament? Give its function. (vii) Define Climactic.
  - (viii) Give the effect of red light on internode growth and etiolation.
  - (ix) Differentiate between alpine and boreal forests. (x) What do you know about Pampas and Prairies?
  - (xi) Give the distribution percentage of water in different forms on the earth. (xii) Define bioconversion

8 × 2 = 16

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

- (i) What are biological Rhythms? (ii) Write two commercial applications of Abscisic Acid.
- (iii) How is reflex action helpful in our daily life? (iv) Compare Gross and Net Primary Production.
- (v) What are compound Sex chromosomes? Write an example. (vi) What is product rule?
- (vii) Why was test cross devised by Mendel? (viii) Write the use of cell suspension culture technique.
- (ix) How do genetic engineers were able to produce salt tolerant plant "Arabidopsis".
- (x) What is the role of suicide gene in transgenic bacteria? (xi) What is Predation? Give its importance.
- (xii) Write the significance of root nodules in plants, Give an example.

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

6 × 2 = 12

- (i) What role is played by gray-crescent in development?
- (ii) How gerontology is helping in increasing expected ages?
- (iii) Why DNA replication is semi-conservative? (iv) What do you know about benign and malignant tumors?
- (v) Why some portion of chromatin is condensed permanently and other remain condensed only during cell division?
- (vi) What is genetic code and also give its properties? (vii) Differentiate between apoptosis and necrosis.
- (viii) What is the theory of special creation? (ix) How biogeography does provide evidence for evolution?

Section ----- II

Note: Attempt any three questions.

(8 × 3 = 24)

- 5. (a) Describe the process of concentration of excretory products in Human Nephron.  
(b) In what respect can cell death be regarded beneficial.
- 6. (a) Describe a Hinge Joint and explain how it is moved by antagonistic muscles?  
(b) Describe flow of Energy in food chain of an ecosystem.
- 7. (a) Explain types and functions of hormones released from cortex of Adrenal gland.  
(b) Give detailed evidences of evolution from comparative anatomy.
- 8. (a) Describe vernalization in plants by giving its significance.  
(b) Describe the inheritance of a trait in which the phenotype of a heterozygote is intermediate between phenotypes of the two homozygotes by giving one example.
- 9. (a) Describe the impact of Nucleus on development by giving example of Acetabularia.  
(b) How Severe Combined Immunodeficiency syndrome (SCID) children are treated