

**PT-2**

**HALF YEARLY EXAMINATION 2022-23  
BIOLOGY**

**CLASS XI**

**Time : 3 hrs.  
Marks : 70**

**General instructions :**

- (i) All questions are compulsory.
- (ii) The question paper has five sections and 33 questions. All questions are compulsory.
- (iii) Section–A has 16 questions of 1 mark each; Section–B has 5 questions of 2 marks each; Section–C has 7 questions of 3 marks each; Section– D has 2 case-based questions of 4 marks each; and Section–E has 3 questions of 5 marks each.
- (iv) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- (v) Wherever necessary, neat and properly labeled diagrams should be drawn

**SECTION - A**

**18 × 1 = 18**

1. Biological names are generally written in which language?  
a) English                      b) Latin                      c) None of these                      d) Italics
2. Bacterias are the member of :  
a) Kingdom Fungi                      b) kingdom Protista  
c) Kingdom Monera                      d) kingdom Plantae
3. Habit of bryophytes is generally:  
a) Sciophytic                      b) Xerophytic                      c) Hygrophytic                      d) Epiphytic

**OR**

Cycas and Adiantum resemble each other in having:

- a) Vessels                      b) Motile sperme                      c) Cambium                      d) Seeds
4. The giant redwood tree is .....  
a) Sequoia                      b) Pinus                      c) Cycas                      d) Cedrus
  5. Which group of animals belong to the same phylum?  
a) Sponge, Sea anemone, Starfish                      b) Prawn, Scorpion, Locusta  
c) Earthworm, Pinworm, Tapeworm                      d) Malarial parasite, Amoeba, Mosquito

**OR**

In majority of the dicotyledonous plants primary root arises from:

- a) Radicle                      b) Part of plant other than radical
  - c) Plumule                      d) All of these
6. Which of the following statements about tissue system is true?  
i) Epidermal cells are parenchymatous with a small amount of cytoplasm lining the cell wall and a large vacuole.  
ii) The outside of the epidermis is often covered with a waxy thick layer called the cuticle which presents inroot and other parts.

- iii) In grasses, the guard cells are bean-shaped.
- iv) The outer walls of guard cells are thick and the inner walls are highly thin.
- v) Sometimes, a few epidermal cells, in the vicinity of the guard cells become specialised in their shape and size are known as subsidiary cells.
- a) (i), (iii), (iv) & (v)      b) (iii), (iv) & (v)      c) (i) and (v)      d) (iii) and (v)
7. The correct order of the digestive system of the frog is:
- A. Mouth, buccal cavity, oesophagus, stomach, intestine, rectum, cloaca, cloacal aperture
- B. Mouth, oesophagus, buccal cavity, stomach, intestine, rectum, cloacal aperture, cloaca
- C. Mouth, buccal cavity, oesophagus, intestine, stomach, rectum, cloacal aperture, cloaca
- D. Mouth, oesophagus, buccal cavity, stomach, rectum, intestine, cloaca, cloacal aperture, cloaca
- a) C                      b) D                      c) B                      d) A
8. Nucleosomes are the:
- a) Histone part of nucleus                      b) Histone and DNA segments of chromosome
- c) DNA and RNA segments of chromosome                      d) DNA segments of nucleus
9. Water-soluble pigments found in plant cell vacuoles are :
- a) Anthocyanins      b) Xanthophylls      c) Chlorophylls      d) Carotenoids
10. When you take cells or tissue pieces and grind them with an acid in a mortar and pestle, all the small biomolecules dissolve in the acid. Proteins, polysaccharides, and nucleic acids are insoluble in mineral acid and get precipitated. The acid-soluble compounds include amino acids, nucleosides, small sugars, etc. When one adds a phosphate group to a nucleoside one gets another acid-soluble biomolecule called:
- a) Nucleotide      b) Adenine                      c) Nitrogen base      d) Sugar phosphate
11. Four different steps that occur during meiosis are given in the following list:
- i. Complete separation of chromatids.
- ii. Pairing of homologous chromosomes.
- iii. Lining up of paired chromosomes on equator.
- iv. Crossing over between chromatids.
- These steps would occur in the order
- a) (ii), (i), (iii), (iv)      b) (ii), (iv), (iii), (i)      c) (iii), (ii), (iv), (i)      d) (i), (ii), (iv), (iii)
12. Aromatic amino acids contain which reactive group?
- a) Hydroxyl                      b) Ethyl                      c) Ketone                      d) Benzene
- a) Both A and R are true and R is the correct explanation of A.

- b) Both A and R are true but R is not the correct explanation of A.  
 c) A is true but R is false. d) A is false but R is true.

**Questions 13-16. consists of two statements Assertion and Reason followed by four options. Choose the correct option. 4 x 1 =4**

13. Assertion (A) : Parental care is seen in amphibians.  
 Reason (R) : Amphibians have taken several method to protect their eggs and offspring.
14. Assertion (A) : In the region of elongation, the cells are very small, thin-walled, and with dense protoplasm.  
 Reason (R) : The cells show rapid elongation and enlargement and are responsible for the growth of the root in length.
15. Assertion (A) : Mesophyll lies between the upper and the lower epidermis.  
 Reason (R) : Mesophyll is ground tissue of leaf.
16. Assertion (A) : Adenosine, guanosine, thymidine, uridine, and cytidine are nucleosides.  
 Reason (R) : Nitrogen bases like adenine, guanine, cytosine, uracil, and thymine when found attached to a sugar they are called nucleosides.

**SECTION - B**

17. What is a taxon? **2**
18. Lichens play an important role in biological succession and soil formation. Justify. **2**
19. How do the appendages support the bird's body? **2**

**OR**

How is mesoglea is different in ctenophores than in cnidarians?

20. Name the three basic tissue systems in the flowering plants. Give the tissue name under each system. **2**
21. Which cell organelles are referred to as suicide bags? Why are they given this name? **2**

**SECTION - C**

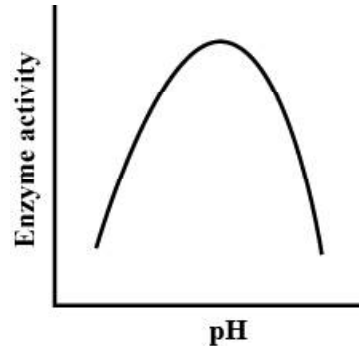
22. What happens when a normal cell turns into a malignant cell? **3**

**OR**

Distinguish between Anaphase I and Anaphase II.

23. How do the biologists arrive at the universally acceptable names of plants and animals? Discuss. **3**
24. Draw a diagram of a flowering plant and write functions of different parts. **3**
25. Give a brief account of the structure and functions of Endoplasmic Reticulum. **3**

26. Enzymes are proteins in which the amino acids are linked to each other by peptide bonds having manyfunctional groups in their structure. As they are weak acids and bases in chemical nature, this ionization isinfluenced by the pH of the solution. For many enzymes, activity is influenced by the surrounding pH. This isdepicted in the curve below, explain briefly. 3



27. Name three phases of interphase. Give one major event of each phase. 3

**OR**

Explain Anaphase of Mitosis briefly.

28. i) What is  $G_1$  phase in cell cycle?  
ii) How does cytokinesis differ in plant and animal cells? 3

#### SECTION D

**Question No. 29 to 31 are case based questions.**

29. **Read the text carefully and answer the questions.** 4

The fungi constitute a unique kingdom of heterotrophic organisms. They show a great diversity in morphology and habitat. Fungi are cosmopolitan and occur in air, water, soil, and on animals and plants. They prefer to grow in warm and humid places. Most fungi are heterotrophic and absorb soluble organic matter from dead substrates and hence are called saprophytes. When a fungus reproduces sexually, two haploid hyphae of compatible mating types come together and fuse. In some fungi, the fusion of two haploid cells immediately results in diploid cells ( $2n$ ). The fungiform fruiting bodies in which reduction division occurs, leading to the formation of haploid spores. Symbionts – in association with algae a slichens and with roots of higher plants as mycorrhiza.

- i) The sexual cycle of fungi involves which of the following steps?
- a) Fusion of two nuclei is called karyogamy
  - b) Meiosis in zygote resulting in haploid spores
  - c) The fusion of protoplasts between two motile or non-motile gametes is called plasmogamy
  - d) All of these
- ii) Which of the following is the incorrect match?

Column I	Column II
a) Parasitic fungus	white spots seen on mustard leaves
b) Penicillium	Source of antibiotic
c) Rhizopus	wheat rust
d) Yeast	make bread and beer

a) c                      b) b                      c) a                      d) d

iii) Choose the correct pair.

- a) Parasitic fungi - feeds on plants and animals
- b) Symbiotic fungi - mycorrhiza
- c) Saprotrophic fungi - feeds on dead and decaying organic matter
- d) All of these

iv) Which form Fungi Stores Food Material?

- a) Protein              b) Oil and glycogen      c) Starch              d) Lipid

30. **Read the text carefully and answer the questions. Attempt any four questions. 4**

Centrosome is a small naked organelle found in the cytoplasm of animal cell near the outer surface of the nucleus. It consists of two bundles of microtubules called centrioles that lie at right-angles to each other. Centrioles are short cylinders and possess a whorl of 9 peripheral fibrils. The fibrils are absent in the centre. Each fibrils are made of 3 sub-fibrils. There is a proteinaceous hub in the central part of a centriole.

i) The main structure of centriole is :

- a) 9 + 1 fibrils      b) 9 + 2 fibrils      c) 9 triplets      d) 0 + 9 fibrils

ii) How many membranes surround a centriole structure?

- a) one                      b) none of these      c) two                      d) three

iii) The central hub is connected to the triplets through :

- a) pinhead                                      b) transverse spokes
- c) radial spokes                              d) lateral spokes

iv) Out of the two centrioles in the sperm, the distal centriole forms :

- a) none of these      b) the head              c) the neck      d) the axial filament

v) Assertion (A) : Centrioles are the self-duplicating bodies. They contain DNA and RNA.

Reason (R) : The centrioles are converted into basal bodies which give rise to cilia and flagella.

- a) Both A and R are true and R is the correct explanation of A.

- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

**SECTION - E**

31. Explain briefly the following terms with suitable examples:

- i) Protonema
- ii) Antheridium
- iii) Archegonium
- iv) Diplontic

**4**

**OR**

Describe the ultrastructure of mitochondria with diagram.

32. Write short notes on following:

- a) Malpighian tubules
- b) Excretion in frogs
- c) Economic importance of cockroach
- d) Glandular epithelium.

**5**

**OR**

Define the following terms

- i) Aestivation
- ii) Placentation
- iii) Actinomorphic
- iv) Zygomorphic
- v) Perignous flower

33. Formation of enzyme-substrate complex (ES) is the first step in catalysed reactions. Describe the other steps till the formation of product.

**5**

**OR**

Explain the nature of bonds linking monomers in a polymer.