

# PT4/ANNUAL EXAMINATION, 2022-23

## BIOLOGY

Time – 3 hrs.

Class – XI (Set-B)

M.M. – 70

Name of the student \_\_\_\_\_ Section \_\_\_\_\_ Date - 20.02.2023 (Monday)

### GENERAL INSTRUCTIONS -

- All questions are compulsory.
- The question paper has 5 sections : Section A, B, C, D and E. There are 33 questions in the question paper.
- Section A has 16 questions of one 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.
- 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 each question.
- Wherever necessary, neat and properly labelled diagram should be drawn.

### SECTION-A

- Q.1 Give example(s) of:  
Hypercalcemic hormone
- Q.2 Which part of our central neural system acts as a master clock?
- Q.3 The human cranium is made of..... bones.
- Q.4 Name the following: A loop of capillary running parallel to the Henle's loop.
- Q.5 What is the site of gaseous exchange in an insect?
- Q.6 Segmentation in the body is first observed in which of the following?  
(a) Platyhelminthes (b) Aschelminthes (c) Annelida (d) Arthropoda
- Q.7 Name the scientist who showed that green plants purifies air in the presence of sunlight.
- Q.8 Write the end products of anaerobic respiration.
- Q.9 Mark the odd one in given series:  
RBC; WBC; platelets; cartilage
- Q.10 When any plane passing through the central axis of the body divides the Organism into 2 identical halves, the Organism is said to have \_\_\_\_\_ symmetry.
- Q.11 In bryophytes, male and female sex organs are called \_\_\_\_\_ and \_\_\_\_\_ respectively.
- Q.12 Find out how much cellulose is made by all the plants in the biosphere.

**OR**

- Illustrate a 'Peptide' bond.
- Q.13 New cells generate from  
(a) bacterial fermentation (b) regeneration of old cells  
(c) pre-existing cells (d) abiotic materials.
- Q.14 Can you identify the correct sequence of taxonomical categories?  
(a) Species → Order → Phylum → Kingdom  
(b) Genus → Species → Order → Kingdom  
(c) Species → Genus → Order → Phylum
- Q.15 Give an example of plant that is partially heterotrophic?
- Q.16 Name the stage of cell cycle at which the following event occurs:  
Centromere splits and chromatids separate.

## SECTION-B

- Q.17 Write short notes on the functions of the following hormones:  
(a) Parathyroid hormones (PTH) (b) Thyroid hormones
- Q.18 Why is the colour of a leaf kept in the dark frequently becomes yellow, or pale green? Which pigment do you think is more stable?

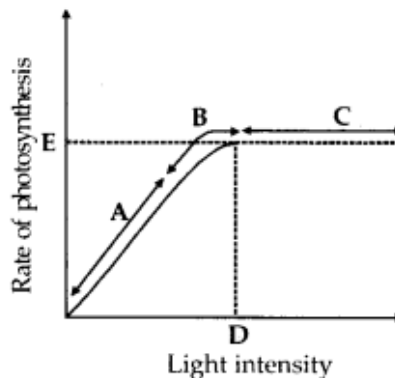
**OR**

What is meant by double circulation? What is its significance?

- Q.19 Distinguish between  
(a) Dense regular and dense irregular connective tissues.  
(b) Adipose and blood tissue.
- Q.20 'Are viruses living or non-living'?
- Q.21 What are nuclear pores? State their function.

## SECTION-C

- Q.22 Define a taxon. Give some example of taxa at different hierarchical levels.
- Q.23 What is stomatal apparatus? Explain the structure of stomata with a labelled diagram.
- Q.24 Cell is the basic unit of life. Discuss in brief.
- Q.25 The given figure shows the effect of light on the rate of photosynthesis. Based on the graph, answer the following questions.



**Fig.:** Graph showing effect of light intensity on the rate of photosynthesis

- a) At which point/s (A, B or C) in the curve is light limiting factor?  
b) What could be the limiting factor/s in region A?  
c) What do C and D represent on the curve?
- Q.26 Which one of the plant growth regulators would you use if you are asked to  
(a) induce growth in axillary buds  
(b) 'bolt' a rosette plant  
(c) induce immediate stomatal closure in leaves.

**OR**

Give the schematic representation of glycolysis.

- Q.27 What is tidal volume? Find out the tidal volume (approximate value) for a healthy human in an hour.
- Q.28 Explain the autoregulatory mechanism of GFR.

## SECTION-D

**(In Q. No. 29 & Q. No. 30, answer any 4 questions only)**

- Q.29 During the rainy season which is also the breeding season of the frog, the frogs make a peculiar sound with the help of their vocal chords known as croaking. The male frogs croak louder than the females. The vocal sacs act as resonators. Being a cold blooded poikilotherm animal, the frog



- iv) Identify the wrong statement about meiosis:
- a) pairing of homologous chromosomes
  - b) 4 haploid cells are formed
  - c) at the end of meiosis the number of chromosomes is reduced to half
  - d) 2 cycle of DNA replication occurs
- v) **Direction:** in the following questions, the assertion (A) and reason (R) have been put forward. Read both the statements and choose the correct option from the following.
- Assertion (A): meiosis is also known as reduction division.
- Reason (R): The chromosomes replicate and get equally distributed both quantitatively and qualitatively into 2 daughter cells.
- 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**

Q.31 Mention the ploidy of the following:

- |                               |  |
|-------------------------------|--|
| a) protonemal cell of a moss; | b) primary endosperm nucleus in dicot, |
| c) leaf cell of a moss;       | d) prothallus cell of a fern;          |
| e) gemma cell in Marchantia;  | f) meristem cell of monocot,           |
| g) ovum of a liverwort, and   | h) zygote of a fern.                   |

**OR**

What is a flower? Describe the parts of a typical angiosperm flower.

Q.32 What is a centromere? How does the position of centromere form the basis of classification of chromosomes. Support your answer with a diagram showing the position of centromere on different types of chromosomes.

**OR**

Give comparison between the following:

- (a) C<sub>3</sub> and C<sub>4</sub> pathways
- (b) Cyclic and non-cyclic photophosphorylation

Q.33 Draw the diagram of a sarcomere of skeletal muscle showing different regions. Describe the important steps in muscle contraction.

**OR**

Write short notes on the following:

- |             |                    |
|-------------|--------------------|
| (a) Retina  | (b) Ear ossicles   |
| (c) Cochlea | (d) Organ of Corti |
| (e) Synapse |                    |

