

J B Academy
Half Yearly Examination 2023-24
Class XI Biology (Subject Code-044)

Maximum Marks: 70

Time: 3 hours

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 labelled diagrams should be drawn.

SECTION -A

Q.1 Which of the following is correct?

- (a) *Musca domestica* Order – Diptera Family – Muscidae Phylum – Arthropoda
- (b) *Mangifera indica* Order – Sapindales Family – Anacardiaceae Phylum – Gymnospermae
- (c) *Triticum aestivum* Order – Poles Family – Monocotyledons Phylum – Angiospermae
- (d) *Panthera leo* Order – leo Family – Felidae Phylum – Mammalia

Q.2 Two taxonomic species are distinguished from each other by

- (a) their ability to exchange gene freely
- (b) their similarity in morphological characters
- (c) their failure to interbreed
- (d) discontinuity in a set of correlated characters

Q.3 Biosystematics aims at

- (a) Identification and arrangement of organisms on the basis of cytological characteristics.
- (b) The classification of organisms based on broad morphological characters.
- (c) Delimiting various taxa of organism and establishing their relationships.
- (d) The classification of organisms based on their evolutionary history and establishing their phylogeny on the totality of various parameters from all fields of studies.

Q.4 Choose the correct match.

- (a) Photosynthetic autotrophs – Nutrient recycling
- (b) Chemosynthetic autotrophs – Nitrogen fixation
- (c) Heterotrophic bacteria – Production of antibiotics
- (d) Mycoplasma – Production of curd

Q.5 Which of the following is an indicator of air pollution?

- (a) Mycorrhiza
- (b) Lichens
- (c) Agaricus
- (d) Common mushrooms

Q.6 Red tides in sea appear due to

- (a) Euglena
- (b) Chrysophytes
- (c) Dinoflagellates
- (d) Diatoms

Q.7 The asexual spores are not found, vegetative reproduction occurs by fragmentation and sexual organs are absent. Identify the class of fungi.

- (a) Basidiomycetes
- (b) Phycomycetes
- (c) Ascomycetes
- (d) Deuteromycetes

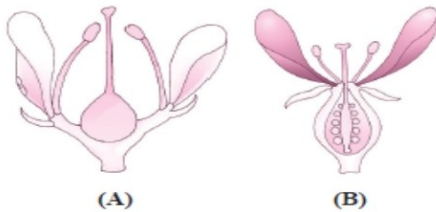
Q.8 Trypanosoma causes

- (a) Dysentery
- (b) Mumps
- (c) Sleeping sickness
- (d) Cholera

Q.9 In a monoecious plant

- (a) Male and female sex organs are on the same individual
- (b) Male and female gametes are of two morphologically distinct types
- (c) Male and female sex organs are on different individuals
- (d) All the stamens are fused to form one unit

Q.10



- (a) A - Hypogynous, superior
B - Perigynous, inferior
- (b) A - Hypogynous, superior
B - Perigynous, half-inferior
- (c) A - Perigynous, inferior
B - Epigynous, superior
- (d) A - Perigynous, half-inferior
B - Epigynous, inferior

Q.11 Chromatophores participate in

- (a) Photosynthesis
- (b) Respiration
- (c) Growth
- (d) Movement

Q.12 The tendrils in *Pisum* are modified

- a) leaflets
- b) terminal buds
- c) stipules
- d) axillary buds

Q.13 Which one of the following groups of animals is correctly matched with its one characteristic feature without even a single exception?

- (a) Mammalia: give birth to young ones
- (b) Reptilia: possess 3-chambered heart with one incompletely divided ventricle
- (c) Chordata: possess a mouth provided with an upper and a lower jaw
- (d) Chondrichthyes: possess cartilaginous endoskeleton

Q.14 Notochord occurs throughout life and all through the length of the body in

- (a) Cephalochordates
- (b) Hemichordates
- (c) Urochordata
- (d) Vertebrata

Directions: In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.

Q.15 **Assertion:** Sponges exhibit cellular level of organization.

Reason: In sponges, cells are arranged as loose cell aggregates.

Q.16 **Assertion:** Gymnosperms do not produce fruit.

Reason: Ovules of gymnosperms are enclosed within the ovaries.

SECTION -B

- Q.17 Cut a transverse section of young stem of a plant from your school garden and observe it under the microscope. How would you ascertain whether it is a monocot stem or a dicot stem? Give reasons.
- Q.18 Write the floral formula of an actinomorphic, bisexual, hypogynous flower with five united sepals, five free petals, five free stamens and two united carpels with superior ovary and axile placentation.
- Q.19 Both lysosomes and vacuoles are endomembrane structures, yet they differ in terms of their functions. Comment.
- Q.20 What are bulliform cells? What is their function?
- Q.21 All vertebrates are chordates but all chordates are not vertebrates". Justify the statement.

SECTION - C

- Q.22 Describe the arrangement of floral members in relation to their insertion on thalamus.
- Q.23 Answer the following with reference to the anatomy of dicot stem:
- (a) Where exactly are the cambial cells located in the vascular bundle?
 - (b) What is the name given to such a bundle?
 - (c) What type of cells constitute the pith?
- Q.24 Name the three basic tissue systems in the flowering plants. Give the tissue names under each system.
- Q.25 Describe any three types of placentation with diagrams found in flowering plants.
- Q.26 What are the reasons that you can think of for the arthropods to constitute the largest group of the animal kingdom?
- Q.27 What is stomatal apparatus? Explain the structure of stomata with a labelled diagram.

OR

Write a note on economic importance of algae and gymnosperms.

- Q.28 Describe the internal structure of axoneme of following array with the help of labelled diagrams.
- (a) 9+2 (b) 9+0

SECTION -D

Read the following passage and answer **ANY FOUR** parts from the given questions:

- Q. 29 Algae are simple thalloid, chlorophyll-bearing, aquatic (both marine and freshwater) organisms. The form and size of algae is highly variable. They are categorized into three classes.
- (a) Name the three classes into which algae are classified and give an example of each.
 - (b) Mention the two major characteristics that form the basis for this classification.
 - (c) Name two unicellular algae.
 - (d) Mention the reserve food materials found in all classes of algae
 - (e) Mention the chemical composition of cell wall of different algae

Q.30 The improved model of the structure of cell membrane proposed by Singer and Nicolson (1972), is called fluid mosaic model. The fluid nature of the membrane is important from the point of view of certain functions.

- (a) What is meant by fluidity of membrane?
- (b) Mention any two functions for which the fluid nature of the membrane is necessary.
- (c) How are the lipids arranged in the cell membrane? What is its significance?
- (d) Draw well labelled diagram of fluid-mosaic model of plasma membrane.
- (e) How polar and non-polar molecules move across the plasma membrane?

SECTION -E

Q.31 What is a centromere and kinetochore? 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

Take one flower of the family Fabaceae or Solanaceae and describe it and write its floral formula. Also draw their floral diagram after studying them.

Q.32 Define the following terms:

- (a) Aestivation
- (b) Actinomorphic
- (c) Zygomorphic
- (d) Superior ovary
- (e) Epipetalous stamen

OR

Draw illustrations to bring out the anatomical difference between

- (a) Monocot root and Dicot root
- (b) Monocot stem and Dicot stem

Q.33 Give a comparative account of Whittaker's five Kingdoms with the help of following table:

Characters	Five Kingdoms				
	Monera	Protista	Fungi	Plantae	Animalia
Cell Type					
Cell Wall					
Nuclear Membrane					
Body Organization					
Mode of Nutrition					