CBT AUGUST 2025:CLASS XI BIOLOGY (PLANT KINGDOM & ANIMAL KINGDOM)

Max. Marks 10

I. Algae are a diverse group of simple, autotrophic organisms that belong to division Thallophyta. They are primarily aquatic, ranging from microscopic forms like phytoplankton to large seaweeds. Algae reproduce in various ways, including vegetative, asexual and sexual methods. They play vital roles in both ecological systems and human economies. Ecologically, algae are primary producers in aquatic environments. Economically, they are used in the production of various products, including food supplements, stabilising agents, cosmetics etc. They are also being explored as a sustainable source of biofuels offering a potential alternative to fossil fuels.

1. Which alga is known for its high protein content and is used as a dietary supplement?
   a. Gelidium
   b. Spirulina
   c. Chlamydomonas
   d. Fucus

2. The reserve food in the members of class Rhodophyceae is in the form of
   a. Oil droplets
   b. Laminarin
   c. Floridean starch
   d. Mannitol

3. Which type of spore is motile and involved in asexual reproduction in some algae ?
   a. Aplanospore
   b. Hypnospore
   c. Akinete
   d. Zoospore

II. Invertebrates are animals **without a backbone or vertebral column**, making up the vast majority of animal species. Unlike vertebrates, invertebrates exhibit a stunning array of body plans and support systems—ranging from **exoskeletons** in arthropods to **hydrostatic skeletons** in worms and jellyfish. Their biological features vary greatly: some, like sponges and jellyfish, have **simple nerve nets and incomplete digestive systems**, while others, such as insects and molluscs, possess complex organ systems, complete digestive tracts, and advanced sensory structures. Reproduction in this group can be sexual or asexual, often involving distinct larval stages before reaching adulthood.

4. Sectional view of two types of animals, based on the nature of coelom is given above. Identify the correct option.

    a. A. Acoelomate B. Coelomate
    b. A. Coelomate B. Pseudocoelomate
    c. A Pseudocoelomate B. Coelomate
    d. A. Acoelomate B. Pseudocoelomate

5. Which among the following is not a characteristic of the phylum Arthropoda ?

    a. Parapodia
    b. Metameric segmentation
    c. Jointed appendages
    d. Chitinous exoskeleton

6. Identify the correct statements about the animals of phylum Aschelminthes and select the option with the correct statements

    A. They are pseudocoelomates.
    B. They are triploblastic and bilaterally symmetrical.
    C. They are monoecious.
    D. They show organ level of organization.
    E. Alimentary canal is complete.

        a. A, B and C
        b. B, D and E
        c. A, B and E
        d. B, C and E

7. **Two statements are given – one as Assertion(A) and the other as Reason(R). Select the correct Answer as a, b, c or d if**

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

Assertion (A): Sponges belong to the phylum Porifera.
Reason (R): Sponges have a canal system.

III. Phylum Cnidaria, also called coelenterata, includes hydroids, jelly fishes, sea anemone and corals. Colonial forms show two types of individuals or zooids – polyps and medusa. The former is cylindrical and usually fixed but may be solitary or colonial, while the latter is umbrella like and generally free swimming, but always solitary. Either or both the forms may occur in a species and may have many subtypes with different structure and function.

8. Which of the statements is incorrect for Cnidaria?

   a. Possess a central gastrovascular cavity
   b. Triploblastic body structure
   c. Digestion is partly intracellular and partly extracellular
   d. Possess stinging cells

9. Which of the following does not belong to phylum Cnidaria ?

   a. Adamsia
   b. Physalia
   c. Sepia
   d. Pennatula

10. **Two statements are given – one as Assertion(A) and the other as Reason(R). Select the correct Answer as a, b, c or d if**

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

    Assertion (A); Cnidarians exhibit two basic body forms: polyp and medusa

    Reason (R); All Cnidarians exist in both the forms and show alternation of generation.

Answer Key

Question 1. ANSWER: Spirulina

Explanation: Spirulina is known for its high protein content and is widely used as a dietary supplement Gelidium is a source of Agar used in preparation of ice creams, jellies etc Chlamydomonas is used for molecular biologic

Question 2. Answer: Floridean starch

Explanation: Floridean starch (similar to amylopectin and glycogen) is the reserve food of red algae (Rhodophyceae) Starch and oil droplets are the reserve food of green algae (Chlorophyceae) Laminarin and mannitol are the reserve food of brown algae (Phaeophyceae)

Question 3. Answer: Zoospore

Explanation: Zoospores possess flagella and are therefore motile and are involved in asexual reproduction in certain algae. Hypnospores and Akinetes are thick-walled resting spores to withstand adverse conditions whereas aplanospores are non-motile.

Question 4. Answer: d. A. Acoelomate B. Pseudocoelomate

Explanation: Coelom is the cavity between body wall and the wall of the gut. In A, cavity isn't present and in B. cavity isn't lined by mesoderm in fact mesoderm is present in pouches.

Question 5. Answer: a. Parapodia

Explanation: Parapodia are basic locomotory organs that are used both in creeping and swimming. thay also help with respiration because they are highly vascularized. These structures can be seen in the members of phylum Annelida.

Question 6. Answer: c. A, B and E

Explanation: They have a cavity not lined by mesoderm, possess three germinal layers, can be divided into equal parts in one vertical plane, alimentary canal has two openings. They show sexual dimorphism hence aren't monoecious and show organ system level of organization.

Question 7. **Answer: b.** Both A and R are true, but R is not the correct explanation of A.

Explanation: Although characteristic of Porifera, having a canal system does not explain their taxonomic placement in the phylum.

Question 8. Answer: b. Body is diploblastic

Explanation: Cells are arranged in two embryonic or germ layers

Question 9. Answer: Sepia

Explanation: Sepia belongs to phylum Mollusca

Question 10. Answer: c. A is true but R is false

Explanation: Some Cnidarians like Obelia exist in both the forms and exhibit alternation of generation (metagenesis). In other Cnidarians, either of the forms is exhibited e.g; Hydra – Polyp and Aurelia – Medusa