

AL HUDA SCIENCE ACADEMY

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Most Important Long Questions of Biology

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Long Questions**Question Number 5**

1. Describe the classification of Biodiversity and also write its aims and basis.
2. Describe the Linnaean system of classification in detail, stating the seven taxonomic ranks and their relationships.
3. Compare and contrast the domains Archaea and Bacteria, focusing on their key characteristics.
4. Describe the diagnostic characteristics of the four kingdoms within the domain Eukarya.
5. Discuss the challenges of classifying viruses within the traditional three domains of life.
6. Explain the rules and guidelines for suggesting scientific names to organisms.
7. What is Binomial Nomenclature? Explain its significance.
8. Explain the fluid mosaic model of the cell membrane.
9. Describe the structure and functions of the cell wall.
10. Discuss the components of the nucleus.
11. Describe the structure and function of lysosome and endoplasmic reticulum.
12. Describe the formation and function of the Golgi complex.
13. Describe the structure and function of the chloroplast.
14. Write a note on cell specialization.
15. Write a note on Neurons and Red Blood cells.
16. Write a detailed note on Stem Cells.

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Question Number 6 (Biomolecules & Enzymes)

1. Write a comprehensive note on the structures and roles of the three classes of carbohydrates.
2. Discuss the functions of proteins.
3. What are proteins? Explain how amino acids are the building blocks of protein.
4. What are fatty acids? Explain their types.
5. Describe the basic structure of fats and oils. Explain how lipids play a role in energy storage.
6. What is meant by lipids? Also explain their structure.
7. Explain the sources and functions of lipids in the human body.
8. Explain the double helix structure of DNA, and discuss the base pairing in this structure.
9. What are nucleic acids? Write their structure and types.
10. Describe the characteristics of enzymes.
11. Compare the Lock-and-Key and Induced Fit models of enzyme action.
12. How are enzymes used in industries?
13. Clarify the working mechanisms of enzymes with the help of models.
14. Describe how temperature extremes can inhibit enzyme activity and lead to enzyme denaturation.
15. How does pH affect enzyme activity?

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Question Number 7

1. Explain the role of nitrogen and magnesium in plants.
2. Explain the internal structure of the root and describe the uptake of salt and water by the root.
3. Describe the events involved in the opening and closing of stomata.
4. Describe the mechanism of transport of water and salt in plants.
5. Explain the mechanism of food translocation by the Pressure Flow Mechanism.
6. Describe the process of gaseous exchange in plants.
7. How do plants excrete extra water and salts from their bodies?
8. Explain osmotic adjustments in hydrophytes, xerophytes, and halophytes.
9. Explain the process of binary fission in bacteria and describe how it leads to the formation of two daughter bacteria.
10. What do you mean by vegetative propagation? Differentiate among different plant structures modified for vegetative propagation.
11. Describe the ways by which humans can grow new plants by using the vegetative parts of parent plants.
12. Write the advantages and disadvantages of vegetative propagation of plants.
13. Define sporophyte and gametophyte. State their roles in the life cycle of plants.
14. Explain the life cycle of flowering plants, focusing on the alternation between the gametophyte and sporophyte generations.

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