

6. Process in which substance gains electrons is called
- (a) oxidation (b) hydrogenation
(c) sublimation (d) reduction
7. A pH value of 6.0 indicates that the soil reaction is _____ in nature.
- (a) acidic (b) alkaline (c) neutral (d) highly alkaline
8. The soil particles of clay is
- (a) 0.001 mm (b) 0.002 mm (c) 0.02 mm (d) 0.0001 mm
9. The building blocks of proteins are
- (a) amino acids (b) fatty acids (c) glucose units (d) coenzymes
10. Carbohydrates, lipids, and proteins all contain carbon, hydrogen, and oxygen. Which one also contains nitrogen?
- (a) carbohydrates (b) proteins
(c) lipids (d) none of these

PART - B (5 x 2 = 10 Marks)

11. Define octet rule.
12. Differentiate hard and soft water.
13. State wet corrosion with suitable example?
14. Define adsorption isotherm.
15. What is meant by flavouring reagents of food? Give example.

PART - C (5 x 16 = 80 Marks)

16. (a) (i) Discuss the molecular orbital theory and its limitations. (10)
(ii) Mention the postulates of valence band theory. (6)
- Or
- (b) (i) Write short note on Aufbau and Pauli exclusion principles. (8)
(ii) Discuss the various types of hybridisation with examples. (8)
17. (a) (i) Discuss the theoretical estimation of hardness of water by EDTA method. (8)
(ii) Discuss desalination by reverse osmosis process. (8)

Or

- (b) (i) Illustrate the process involved in the domestic water treatment. (8)
(ii) How is water softened by ion exchange method? Explain in detail with a neat diagram. (8)

18. (a) (i) Formulate the Nernst equation for the electrode reaction. (8)
(ii) What are the factors affecting the corrosion? (8)

Or

- (b) (i) Discuss the various components present in the paint with suitable example. (8)
(ii) Outline the mechanism of dry corrosion. (8)

19. (a) (i) Discuss in detail the different types of adsorption isotherm. (10)
(ii) Write short notes on buffering capacity of soil. (6)

Or

- (b) (i) Discuss the factors affecting the sorption of soil. (8)
(ii) Briefly describe about the surface properties of inorganic soil materials? (8)

20. (a) (i) Discuss the manufacturing process of ethanol and acetic acid by fermentation methods. (10)
(ii) Discuss the properties of food preservatives and colouring agents with suitable examples. (6)

Or

- (b) (i) Write short notes on: (i) Lipids and (ii) Proteins. (10)
(ii) Discuss the changes caused by agriculture and over grazing. (6)
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