TYBT

Time: 2½ Hours **Total Marks: 75**

1. Attempt **all** questions.
2. **All questions** carry **equal** marks.
3. Draw **neat labeled diagrams** wherever necessary.
4. Use of **log tables** and **non-programmable calculators** is **allowed**.

Q.1 a. Select the correct alternative: (Any Fifteen) **15**

1. Which of the following bonds are not involved in the tertiary type of protein structure?
   a. Disulfide bond
   b. Hydrogen bonding
   c. Salt bridge
   d. Hydrophilic interaction
2. Which of the following is false about fibrous protein?
   a. It is in rod or wire-like shape
   b. Keratin and collagen are the best examples
   c. Hemoglobin is the best example
   d. It provides structural support for cells and tissues
3. Process of folding does not depend on _____.
   a. Concentration of salts
   b. pH
   c. Solute
   d. Solvent
4. Myoglobin is particularly abundant in _____
   a. Nerves
   b. Muscle
   c. Blood cells
   d. Skin
5. The contractile protein of a muscle is _____
   a. Troponin
   b. Myosin
   c. Tubulin
   d. Tropomyosin
6. Glycogen synthesis from glucose is done by the enzyme
   a. Glycogen polymerase
   b. Glycogen ligase
   c. Glycogen lyase
   d. Glycogen synthase
7. Peptidoglycan polymers are synthesized in the
   a. Cytoplasm
   b. Nucleus
   c. Cell membrane
   d. Cell wall
8. The essential intermediates in the pathway from acetate to cholesterol are
   a. Acetic acid
   b. Ethylene
   c. Isoprene units
   d. Methane

9. In humans, High levels of cholesterol in the blood are correlated to
   a. Cardiovascular diseases
   b. Liver disease
   c. Kidney diseases
   d. Neither
10. A protein that performs priming function during glycogen biosynthesis is
   a. Glycogenin
   b. Thermogenin
   c. Proteolipids
   d. Neither
11. Which of the following hormones is a polypeptide?
   a. Estrogen
   b. Insulin
   c. Androgen
   d. Epinephrine
12. Hormones are _____.
   a. messengers
   b. catalysts
   c. enzymes
   d. inhibitors
13. Which of the following is not an amine hormone?
   a. Norepinephrine
   b. Adrenaline
   c. Thyroxine
   d. Oxytocin
14. Identify the hormone that increases the glucose level in the blood.
   a. Insulin
   b. Glucagon
   c. Oxytocin
   d. Vasopressin
15. The condition of goiter is associated with which hormone?
   a. Insulin
   b. Thyroxine
   c. Adrenaline
   d. Cortisone
16. The deficiency disease associated with vitamin B1 (Thiamine) is
   a. Beriberi
   b. Night blindness
   c. Osteomalacia
   d. Scurvy
17. Which mineral helps to reduce dental decay?
   a. Zinc
   b. Fluoride
   c. Manganese
   d. Chromium

18. Which mineral is a major/macro mineral?
    a. Iron
    b. Zinc
    c. Calcium
    d. Copper
19. Sodium deficiency is seen with
    a. Excessive sweating
    b. Excessive salt intake
    c. Lack of Sodium in the diet.
    d. Excessive Potassium in the diet.
20. What are the primary symptoms of Marasmus?
    a. Edema, diarrhea, and weight loss
    b. Weight loss, muscle wasting, and lethargy
    c. Fever, cough, and difficulty in breathing
    d. Diarrhea, vomiting, and abdominal pain.

Q.2 a. How do protein motifs serve as a crucial structural basis for classifying proteins? **08**

Q.2 b. Explain the tertiary and quaternary structure of a protein with an example. **07**

OR

Q.2 c. Discuss the process of protein folding, highlighting the key principles and mechanisms involved. **08**

Q.2 d. Discuss the structure and function of oxygen-binding proteins, focusing on hemoglobin and myoglobin. **07**

Q.3 a. Explain the synthesis of peptidoglycan in bacteria. **08**

Q.3 b. Explain the regulation of cholesterol biosynthesis. **07**

OR

Q.3 c. Diagrammatically explain starch biosynthesis. **08**

Q.3 d. Explain glycogenesis in detail. **07**

Q.4 a. What are hormones? Discuss about the group I and II hormones and their mechanism of action. **08**

Q.4 b. Elaborate on androgen synthesis, physiology, and biochemical functions. **07**

OR

Q.4 c. Discuss Abnormalities of growth hormones and add a note on the functions of Oxytocin. **08**

Q.4 d. Elaborate on estrogen synthesis, physiology, and biochemical functions. **07**

Q.5 a. Discuss the sources, functions, and deficiency disorders related to vitamin K. **08**

Q.5 b. Write a detailed note on the role of B2 (Riboflavin) in the body. **07**

OR

Q.5 c. Explain sources, forms, functions, and deficiency disorders of vitamin D. **08**

Q.5 d. Write a note on the importance of Potassium in the diet. **07**
