

B. E. FTBE 2nd Year 4th Semester Evaluation 2025

Biochemistry and Nutrition II

Time : 3 Hours

Full Marks: 100

Answer **any ten** questions

10x10=100

- 1a. What is meant by enzyme specificity?
b. Mention any two factors that affect RDA.
c. What is exon?
d. Give the structure of deoxyribose. (2+2+3+3)
- 2a. What do you understand by origin of replication?
b. What is the ratio of $(V/V_{\max})$ when $[S] = 5 K_m$?
c. What is bioaccessibility?
d. What is geriatric nutrition? (2+3+2+3)
- 3a. Distinguish between enzyme and chemical catalyst.
b. Mention the four stages of protein synthesis.
c. Distinguish between replication and transcription. (2+4+4)
- 4a. What are codons?
b. What is metalloenzyme?
c. A ribosome contains three binding sites for t RNA. Illustrate. (2+2+6)
- 5a. What do you understand by sense strand?
b. How much intake of free sugar is permitted in a healthy diet?
c. Explain the effect of temperature on enzyme activity.
d. What is Enzyme Commission number? (2+2+4+2)
- 6a. In DNA how the two strands of double helix are held together?
b. What is the advantage of unsaturated fat in diet?
c. What are the significances of K_m ? (3+3+4)
- 7a. Explain how presence of competitive inhibitors affects K_m and $V_{\max}$.
b. Why presence of excess carbohydrate in diet increases thiamine requirement? $([3+3] +4)$
- 8a. Instead of avoiding carbohydrate, consumption of complex carbohydrate is recommended. Justify.
b. What is double reciprocal plot?
c. What is the maximal reaction rate if adding 3M of substrate produces a reaction rate of 15mol/s? ($K_m = 3M$) (4+3+3)

[Turn over

- 9a. What are the steps of RNA processing?
b. THF is actively involved in one carbon metabolism. Justify.
c. What do you understand by specific acid catalysis? (3+4+3)
- 10a. Why DNA replication is called semiconservative?
b. What is the role of SSBP in replication?
c. Explain schematically the mechanism of action of carbonic anhydrase. (3+3+4)
- 11a. Mention one FAD dependent enzymes of each of carbohydrate, lipid and protein metabolism.
b. Mention any two functions of vitamin A. (6+4)
- 12a. Write any two functions of vitamin C.
b. Write any two functions of iron.
c. What are dietary supplements? (4+4+2)