

The West Bengal University of Health Sciences
M.D. (Biochemistry) May - June, 2022 Examination

Paper I**Full Marks:100****Time : 3hours**

Attempt all questions

1. Define a buffer system with an example. Describe the ideal characteristics for a good buffer system. Explain how you can derive the definition of pK value from the Handerson and Hasselbalch equation. 2+3+5
2. Describe Sanger's method of DNA sequencing. Write a note on next Generation sequencing. 6+4
3. Name the accessory proteins helping native protein folding with their functions. Name two diseases with protein misfolding describing the roles of abnormal proteins in each. 5+5
4. Write short notes on : 2x5
 - a) Chi square test.
 - b) Positron emission tomography (PET).
5. Give the structure and classification of collagen. What are the post translational modification of collagen. 6+4
6. Enumerate the signal transduction pathway involved in phosphoinositide system and describe any one. Briefly describe the synthesis, signal pathway and effect of NO. 3+4+3
7. Classify eicosanoids and briefly describe their synthesis and biologic effects. 5+5
8. Briefly describe the synthesis and function of non-coding and double stranded RNA. 5+5
9. Enumerate the major checkpoints of cell cycle. Explain how p53 performs a vital role in these restriction points for maintaining a healthy cell cycle. Explain how folate deficiency affects the cell cycle to cause megaloblastic anemia. 2+5+3
10. Write the principle of HPLC and describe the estimation of HbA1c by this process. 10