

**PG CBCS**  
**M.Sc. Semester-I Examination, 2021**  
**MEDICAL LABORATORY TECHNOLOGY (MLT)**  
**PAPER: MLT 104**  
**(ADVANCED MEDICAL LABORATORY TECHNIQUES)**

**Full Marks: 40****Time: 2 Hours**

**Answer any FOUR questions of the following: 4X10=40**

1. Define centrifugal force. What is relative centrifugal field? Why relative centrifugal field is used? Write a short note on differential centrifugation. 2+2+2+4
2. Write down the different methods adopted in ELISA reader. State the applications of ELISA reader. 6+4
3. How does the poly acrylamide gel form? Write the function of  $\beta$ -mercapto ethanol on protein structure. What is native PAGE? State the function of tracking dyes in agarose gel electrophoresis. 3+2+2+3
4. Differentiate between normal phase and reverse phase of HPLC. Write the major components used in HPLC. Does gradient elution give any advantages over isocratic elution in HPLC? Justify as per your answer. 2+6+2
5. Write the basic principle of compound microscope. Define resolving power and limit of resolution. How does the oil immersion lens work? 4+3+3
6. How the DNA library is prepared for next generation sequencing? Briefly describe about the emulsion PCR. State the basic principle of 454 pyrosequencing. 3+3+4
7. Describe the reaction cycle of a PCR reaction where the  $T_m$  value of primers are 62 °C. Why TaqMan probe method is considered more accurate compared to SyBr green dye method? What is touch down PCR? 4+4+2
8. Write the process of Southern blotting with diagram. How do you develop the bands in the western blot? 6+4
9. Briefly describe the Lambert's and Beer's law. Write down the principle and application of NMR spectroscopy. 4+(4+2)
10. Write short notes on (any two) : 5+5
  - a. Phase contrast microscopy.
  - b. Pulsed field gel electrophoresis.
  - c. ECG.

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