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**PG CBCS**  
**M.Sc. Semester-I Examination 2020**  
**MLT**  
**PAPER: MLT 104**

**Full Marks: 40****Time: 2 Hours****Answer any four questions of the following:****10X4=40**

1. What is sedimentation coefficient? What is buoyant force? State its importance. Write a note on density gradient centrifugation. 2+2+2+4
2. How do the autoanalyzer work? What are the disadvantages of autoanalyzer? How do you detect tuberculosis by X-Ray? What is the principle behind it? 3+2+2+3
3. If HRP is the enzyme, what is the substrate? Which type of ELISA will you use to detect HIV? Briefly write that principle and procedure. 2+2+6
4. Differentiate between moving boundary electrophoresis and zone electrophoresis. What is role of SDS in PAGE? Why do three different pHs (running buffer pH 8.3, stacking gel pH 6.8 and, separating gel pH 8.8) use in SDS-PAGE? What is PFGE? 2+2+4+2
5. Write the general principle of chromatography. How it is adapted in liquid chromatography? Comparison between normal phase and reverse chromatography. What are the applications of HPLC in biomedical laboratory? 2+2+3+3
6. What is the importance of oil immersion lens? Write down the principle of phase contrast microscope. Differentiate between SEM and TEM. 3+4+3
7. If the  $T_m$  of forward and reverse primers are 55 °C, then prepare the reaction cycle of PCR. In the quantitative real time PCR, two different methods are used: SYBR Green dye and TaqMan Probe method. Which method is more accurate as per your opinion and why? What is nested PCR? 3+1+4+2
8. Briefly describe the Maxam and Gilbert's chemical degradation method of DNA sequencing. Write a note on pyrosequencing. 6+4
9. Write the different parts of sonicator. How does sonicator Work? State the applications of sonicator. 3+3+4
10. Write the process of Northern blotting with diagram. How do you develop the bands in the western blot? 6+4

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