

**F 2341**

Reg. No.....

Name.....

**Ph.D. COURSE WORK EXAMINATION IN BIOSCIENCE/PHARMACY/  
BIOCHEMISTRY/MICROBIOLOGY/BIOTECHNOLOGY, OCTOBER 2022**

Course II—THEORY AND CONCEPT—BIOSCIENCES

(2020 Admissions)

Time : Three Hours

Maximum : 50 Marks

**Part A**

*Answer any ten questions.*

*Each question carries 4 marks.*

1. Explain the significance of NMR in Biological Research.
2. Give the significance of Direct and Indirect ELISA.
3. Explain the Bragg's Law and X-Ray diffraction.
4. What is Sterilisation ? Write a note on moisture heat sterilisation.
5. Classify the antioxidants with examples.
6. What are the different types of Ion exchange resins employed in ion exchange chromatography.
7. Discuss agglutination and explain direct agglutination test.
8. Define Immuno fluorescence. What are the different types and its advantages ?
9. What is the differences between IR and FTIR write a note on FTIR.
10. Explain the materials used in Gel chromatography.
11. What is DNA sequencing ? Explain.
12. Define and explain Henderson Hasselbalch equation.

(10 × 4 = 40 marks)

**Part B**

*Answer any one of the following questions.*

*The question carries 10 marks.*

13. What is Centrifugal force and relative Centrifugal force give its applications in Bio chemical research ?
14. Discuss the various stages in the biological analysis of drinking water. Specify the experimental strategy of each stage.

(1 × 10 = 10 marks)