

**SUPPLEMENTARY**  
**MASTER OF PHARMACY (M. PHARM.) (CBCS-2019 COURSE)**  
**M.Pharm. Sem-II PHARMACEUTICAL BIOTECHNOLOGY :SUMMER- 2022**  
**SUBJECT : IMMUNOTECHNOLOGY**

Day : Friday

Time : 10:00 AM-01:00 PM

Date : 16-09-2022

**S-20772-2022**

Max. Marks : 75

---

**N.B.:**

- 1) **Q.1 and Q.5** questions are **COMPULSORY**. Out of the remaining questions attempt **ANY TWO** of the following:
  - 2) Answers to both the sections should be written in **SEPARATE** answer books.
  - 3) Figures to the right indicate **FULL** marks
- 

**SECTION – I**

- Q.1** Explain the role of stem cell technology in treatment of different disorders. **[08]**
- Q.2** Describe the classical complement pathway. Why do you think it is not a part of innate immune response? **[15]**
- Q.3** What is hypersensitivity? Explain the mechanism and symptoms of delayed hypersensitivity with suitable example. **[15]**
- Q.4** Write notes on **ANY TWO** of the following: **[15]**
- a) Alternate pathway
  - b) Primary and secondary immunodeficiency disorders
  - c) Recombinant vaccine

**SECTION – II**

- Q.5** Explain the principle and types of ELISA. **[07]**
- Q.6** What is blotting technique? Explain in detail principle and applications of western blot analysis. **[15]**
- Q.7** What is hybridoma technology? Explain in short production and applications of monoclonal antibodies in pharmaceutical industry. **[15]**
- Q.8** Write short notes on **ANY TWO** of the following: **[15]**
- a) Agglutination reaction
  - b) Autoimmune disorders
  - c) Immune-electrophoresis

\* \* \* \*