JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- MARCH-2023

COURSE CODE (CREDITS): 18MS1BT211(3) / 14M11BT212(3) MAX. MARKS: 15

COURSE NAME: IMMUNOLOGY AND IMMUNOTECHNOLOGY / IMMUNOTECHNOLOGY

COURSE INSTRUCTORS: Dr. Rahul Shrivastava MAX. TIME: 1 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q1. Draw and describe precipitin curve for a reaction mixture containing equimolar concentration of Antigen and Antibody, taking: **[2.5]**

[Antigen] = Constant for the entire reaction

[Antibody] = Increasing on X-axis

[Precipitate formed] = on Y-axis

Q2. **Case Study**: *Vibrio cholera* antigen was isolated from a patient. Purified form of the *Vibrio cholera* antigen is also available with you. Design a Radial Immuno Assay based experiment to identify and also quantify the amount of antigen present in the patient sample; provide important parts of the protocol, diagrams and standard curve to be utilized. **[5]**

Q3. Provide suitable justification in support of the statements provided: **[1 X 5 = 5]**

a. Common milk powder can be used as a blocking agent in western blot experiments.

b. Use of capture antibody in Sandwich ELISA increases the sensitivity of the assay.

c. Indirect ELISA provides better sensitivity of the assay in comparison to Direct ELISA.

d. Several washing steps with PBST are required in an ELISA experiment to achieve proper results.

e. Use of a colourless substrate and colourless enzyme is essential in ELISA, to produce a colored product.

Q4. Differentiate between Direct and Indirect Agglutination with examples. **[2.5]**