

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS-2022

M.Sc-III Semester (Microbiology)

COURSE CODE (CREDITS): 21MS1MB312

MAX. MARKS: 15

COURSE NAME: DIAGNOSTIC MICROBIOLOGY AND VACCINES

COURSE INSTRUCTORS: Dr. Rahul Shrivastava

MAX. TIME: 1 Hour

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

Q1. Three series of precipitation reactions were performed simultaneously with constant concentration of antibody and increasing concentration of antigen provided below: [3]

A. Antibody = 1M; Antigen = 0.5M

B. Antibody = 1M; Antigen = 1.0M

C. Antibody = 1M; Antigen = 2.0M

Draw the three precipitin curves that would be obtained, in a single graph. Discuss the position of the curves obtained.

Q2. Explain the following:

[1.5+1.5+1 =4]

a. Prozone Phenomenon

b. Zeta Potential

c. Antibody Titer

Q3. Provide suitable justification in support of the statements provided:

[1 X 5 = 5]

- Common milk powder can be used as a blocking agent in western blot experiments.
- Use of two antibodies in Sandwich ELISA increases the detection specificity of the antigen.
- Monoclonal antibodies are commonly used for detection of antigens in Direct ELISA.
- Polyclonal antibodies are commonly used as capture antibodies in Sandwich ELISA.
- Use of a colourless substrate and colourless enzyme is inevitable for ELISA, which produce a colored product.

Q4. You have been provided with a mixture of proteins. Suggest a method which you may use for separation of individual components of the mixture, followed by detection of an antigen in the mixture provided. Enlist all steps with their brief description.

[3]