JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATIONS-2024

M.Sc (Microbiology) – III[rd] Semester

COURSE CODE (CREDITS): 21MS1MB312 (3) MAX. MARKS: 15

COURSE NAME: DIAGNOSTIC MICROBIOLOGY AND VACCINES

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

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

Q1. ***Case Study:*** Blood samples were collected from ten individuals to check for the presence of antibody against SARS-CoV-2 virus. Purified SARS-CoV-2 viral antigen is also available with you. Design a Radial Immuno Assay based experiment to identify, and quantify the amount of antigen present in the samples provided. Provide flowchart of the protocol, draw suitable diagrams and standard curve for describing the method employed. **[5]**

Q2. Steroids and other performance-enhancing drugs are banned in Athletics. Compare and suggest a diagnostic method to detect the minute quantities of such banned drugs using any body fluid sample from the sports person. Provide details of the method which may be used with suitable reasons for your choice. Discuss the logistics and applications of the method. **[5]**

Q3. Three precipitation reactions were performed simultaneously with increasing concentration of antigen and constant concentration of antibody as provided below: **[3]**

A. Antibody = 1.0 M; Antigen = 1.0 M
B. Antibody = 1.0 M; Antigen = 2.0 M
C. Antibody = 1.5 M; Antigen = 4.0 M

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

Q4. Define the following: **[1 X 2 = 2]**

a. Antibody Titre
b. Zeta Potenial