

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -I EXAMINATION - 2024

B.Tech - VIII Semester (BT)

COURSE CODE (CREDITS): 18B1WBT833 (3)

MAX. MARKS: 15

COURSE NAME: DIAGNOSTICS AND VACCINE MANUFACTURE

COURSE INSTRUCTORS: Dr. Rahul Shrivastava

MAX. TIME: 1 Hour

Note: Note: (a) All questions are compulsory.

(b) Marks are indicated against each question in square brackets.

Q1. **Case Study:** Blood samples were collected from all students of your class to check for the presence of antibody (due to infection or vaccination) against SARS-CoV-2 virus, causative agent for Coronavirus disease 2019 (COVID-19). Purified form of the SARS-CoV-2 virus 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 samples provided. Provide details of the protocol, suitable diagrams and standard curve to be utilized.

(CO-II) [5]

Q2. Three precipitation reactions were performed simultaneously with constant concentration of antibody and increasing concentration of antigen as detailed below:

(CO-II) [3]

A. Antibody = 1M; Antigen = 0.5M

B. Antibody = 1M; Antigen = 1.0M

C. Antibody = 1M; Antigen = 2.0M

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

Q3. Write Detailed Notes on **ANY TWO** of the following with suitable diagrams: (CO-II) [3.5 X 2 = 7]

- i. Phagocytosis
- ii. Inflammatory Response
- iii. Types and detailed structure of Antibodies