

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATIONS - 2022

B. Tech-III Semester (BI)

COURSE CODE (CREDITS): 18B11BI312 (4)

MAX. MARKS: 35

COURSE NAME: MICROBIOLOGY & IMMUNE SYSTEM

COURSE INSTRUCTORS: Dr. Rahul Shrivastava

MAX. TIME: 2 Hour

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

Q1. With respect to ELISA answer the following, provide suitable reasons wherever applicable:

(CO – IV) [1.5 X 5 = 7.5]

- Necessity of using a colourless substrate for ELISA
- Advantages of using ELISA as a diagnostic tool.
- Need /Use of repeated washing steps during and ELISA test.
- Enzyme and substrates commonly used in ELISA
- Basic steps used in an ELISA experiment.

Q2. **Case study:** Gopal was infected with Corona Virus (Covid-19 infection), and was admitted to the hospital for 15 days. He recovered from the infection, but did not take any vaccine for the disease. Rahul received two doses of the Covid-19 recommended vaccine. On serum analysis both were found to have similar levels of antibodies for the Corona Virus (Covid-19 infection). Analyzing both cases, discuss the type of immunity and duration of immunity acquired by the two people. Provide an immunological analysis of both scenarios. What would be the difference in type of immune response shown by immune system of Gopal and Rahul if they encounter a new/fresh infection?

(CO – V) [5.5]

Q3. A patient is infected with a bacterial infection. Blood sample was isolated and is provided to you for diagnosis of the disease. Design a Radio Immuno Assay based experiment to diagnose the infection. Provide all steps and diagrams you will use for confirmation of the disease.

(CO – IV) [5]

Q4. Define Agglutination and describe different types of agglutination. Illustrate a routine pathological application of agglutination used in diagnostics world-wide.

(CO – V) [5]

Q5. Write Notes on the following with suitable diagrams wherever required:

(CO – IV) [3 X 4 = 12]

- Phagocytosis
- Inflamantion
- Types and detailed structure of Antibodies