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Subject Code:- AMTBT0111

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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

M.Tech

SEM: I - THEORY EXAMINATION (2022 - 2023)

Subject: Immunology & Vaccine Technology

Time: 3 Hours

Max. Marks: 70

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of **three Sections -A, B, & C.** It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

2. Maximum marks for each question are indicated on right -hand side of each question.

3. Illustrate your answers with neat sketches wherever necessary.

4. Assume suitable data if necessary.

5. Preferably, write the answers in sequential order.

6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION A

15

1. Attempt all parts:-

- 1-a. Which of the following substances will not stimulate an immune response unless they are bound to a larger molecule? (CO1) 1
- (a) Antigen
 - (b) Virus
 - (c) Hapten
 - (d) Miligen
- 1-b. The heavy chain of Immunoglobulin molecules are: (CO2) 1
- (a) Encoded by a constant region exon
 - (b) Expressed by T cells
 - (c) No glycosylated
 - (d) Heavily phosphorylated
- 1-c. For which viral disease, vaccine has been recently developed through the use of tissue culture? (CO3) 1

- (a) Measles
 - (b) Mumps
 - (c) Rabies
 - (d) Smallpox
- 1-d. Adverse reactions to anthrax vaccine includes: (CO4) 1
- (a) Swelling at the injection site
 - (b) Urticaria Regional lymphadenopathy
 - (c) Generally, a higher risk of a reaction after subsequent doses if there was a reaction to the first dose
 - (d) Both a and b
- 1-e. Hepatitis A vaccine is routinely recommended for the following groups: (CO5) 1
- (a) Food handlers working in a shellfish market
 - (b) Individuals going to reside in Spain
 - (c) Sewage workers
 - (d) Patients with chronic renal disease

2. Attempt all parts:-

- 2.a. What is an example of cell mediated immunity? (CO1) 2
- 2.b. How are antigenic determinants formed? (CO2) 2
- 2.c. Name the three Live vaccines? (CO3) 2
- 2.d. Why is it nearly impossible to develop a vaccine for parasitic diseases? (CO4) 2
- 2.e. What are residual in vaccine manufacturing? (CO5) 2

SECTION B

20

3. Answer any five of the following:-

- 3-a. Do you inherit immunologic memory? Why or why not? (CO1) 4
- 3-b. Describe the types of blood cells that make up the immune system. (CO1) 4
- 3-c. How do WBC's find the bacteria? (CO2) 4
- 3-d. What is oxidative burst? (CO2) 4
- 3.e. What is retro vaccinology? (CO3) 4
- 3-f. Comment on the mechanism of action of polio vaccine. (CO4) 4
- 3.g. What is the role of cell culture materials, inactivating ingredients, and antibiotics in vaccine manufacturing? (CO5) 4

SECTION C

35

4. Answer any one of the following:-

- 4-a. Define immunity and explain the ways to boost the immunity? Also mention how you care for your body? (CO1) 7
- 4-b. What is an antigen and antibody? What is their relationship to one another? (CO1) 7

5. Answer any one of the following:-

- 5-a. Describe the process of B cell maturation with suitable diagram. (CO2) 7
- 5-b. Describe the process of exogenous antigen processing.(CO2) 7

6. Answer any one of the following:-

- 6-a. People say that vaccines are linked to long-term health problems such as multiple sclerosis, diabetes, and autism. Give your comments? (CO3) 7
- 6-b. Is the polio vaccine linked to HIV? Give your comments. (CO3) 7

7. Answer any one of the following:-

- 7-a. Explain the modes of action of conjugate vaccines. (CO4) 7
- 7-b. Write a short note on the Anthrax vaccines. (CO4) 7

8. Answer any one of the following:-

- 8-a. How we can prepare ourselves to these unforeseen deadly invasions of epidemic causing agents? (CO5) 7
- 8-b. Write a detail note on the three phases of clinical trial.(CO5) 7