Printed Page:- Subject Code:- AMTBT0111

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute)

Affiliated to Dr. A.P.J. Abdul Kalam Technical University, Uttar Pradesh, Lucknow

M.Tech

SEM: I - THEORY EXAMINATION (2021 - 2022)

Subject: Immunology & Vaccine Technology

Time: 03:00 Hours Max. Marks: 70

General Instructions:

1. All questions are compulsory. It comprises of three Sections A, B and C.

- Section A - Question No- 1 is objective type question carrying 1 mark each & Question No- 2 is very short type questions carrying 2 marks each.
- Section B - Question No- 3 is Long answer type - I questions carrying 4 marks each.
- Section C - Question No- 4 to 8 are Long answer type - II questions carrying 7 marks each.
- 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. Artificially acquired passive immunity refers to immunity from: (CO1) 1

1. Transfer of antibodies from mother to foetus across the placenta
2. Recognition of an antigen by B cells
3. Injection of the antigen in a vaccination
4. injection of immunoglobulins

1-b. When should a baby not be given a DTaP vaccine? (CO2) 1

1. The child has a moderate or serious illness with or without fever
2. The child had a serious allergic reaction (anaphylactic reaction) to the DTaP vaccine given in the past
3. The child had encephalopathy after a vaccine when no other cause was apparent
4. B or C

1-c. Which one is recommended about Pneumonia vaccine? (CO3) 1

1. 1 dose is given starting age 65 years
2. 3 doses are to be given before age 65 years
3. Re-vaccination is recommended every 5 years
4. 4 doses are to be given before age 65 years

1-d. Adverse reactions to anthrax vaccine includes: (CO4) 1

1. Swelling at the injection site
2. Urticaria Regional lymphadenopathy
3. Generally, a higher risk of a reaction after subsequent doses if there was a reaction to the first dose
4. Both a and b

1-e. Adverse reactions attributable to oral cholera vaccine include: (CO5) 1

1. A rash at a rate of 1 per 1,000 doses
2. A flu-like syndrome at a rate of less than 1 per 10,000 doses
3. Paraesthesia (“pins and needles”) at a rate of 1 per 100 doses

4. Arthralgia (joint pains) at a rate of fewer than 1 per 1,000 doses

2. Attempt all parts:-

2-a.	What are the functions of MHC I and MHC II? (CO1)	2
2-b.	Define Edema and its characteristics. (CO2)	2
2-c.	Define an inactivated vaccine and give two examples? (CO3)	2
2-d.	How many booster shots are required for hepatitis A & B? (CO4)	2
2-e.	What are biologicals? Give one example. (CO5)	2

SECTION B 20

3. Answer any five of the following:-

3-a.	Briefly explain the components of innate immunity quizlet? (CO1)	4
3-b.	What type of symptoms might you expect if the immune system failed to apply the brakes after eradicating a pathogen? (CO1)	4
3-c.	Define antibodies and enlist any seven functions of antibodies? (CO2)	4
3-d.	Briefly describe the four phases of the immune response? (CO2)	4
3-e.	Explain the most common route of transmission of pediatric HIV infection. (CO3)	4
3-f.	What is the causative agent of rabies? How the disease spreads? (CO4)	4
3-g.	Briefly describe the pre-clinical stage in vaccine development ? (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.	Describe how the principle of herd immunity works to protect unvaccinated individuals. What characteristics of the pathogen or of the host do you think would most impact the degree to which this principle begins to take hold? (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.	Briefly describe the phenomenon of antigen processing and presentation. (CO2)	7

6. Answer any one of the following:-

6-a.	Can you get a disease from the vaccine that’s supposed to prevent it? And why do some vaccines have live pathogens but others have killed pathogens? (CO3)	7
6-b.	What progress have been made in the vaccination of HIV infected patients. What can be the future of antiviral vaccines. (CO3)	7

7. Answer any one of the following:-

7-a.	Write a short note on viral vaccines with suitable examples. (CO4)	7
7-b.	Enlist the challenges associated with the rabies vaccine production? (CO4)	7

8. Answer any one of the following:-

8-a.	Describe in detail the process of vaccine manufacturing. (CO5)	7
8-b.	Write short note on pre-licensure vaccine safety. (CO5)	7