P. P. SAVANI UNIVERSITY
Third Semester of B.Sc. Examination
December-2021
SSBT2090–Immunology-II

10.12.2021, Friday **Time: 09:00 a.m. to 11:30 a.m.** **Maximum Marks: 60**

Instructions:
1. The question paper comprises of two sections.
2. Section I and II must be attempted in separate answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

Section-I (Total Marks - 30)

Q.1 Short Questions **[10]**

1.1 Objectives **[05]**

1.1a Which of the following is the cause of autoimmune diseases?
- **A** Immune System begins to attack its cells and tissues
- **B** Immune System starts producing cells and tissues
- **C** Immune System fails completely
- **D** Immune System produces WBCs in a huge number

1.1b Commercially available ELISA kits are used for the detection of
- **A** rotavirus
- **B** hepatitis B surface antigen
- **C** anti-HIV antibodies
- **D** all of these

1.1c Precipitation reaction is relatively less sensitive for the detection of
- **A** antigens
- **B** antibodies
- **C** Complement
- **D** antigen-antibody complexes

1.1d After giving a vaccine you should always:
- **A** Observe the recipient for immediate adverse reactions (ADRs)
- **B** Keep the recipient under longer observation in the surgery
- **C** Keep accurate and accessible records of both the recipient and the vaccine given
- **D** All the above

1.1e Neutrophils, basophil, lymphocytes, eosinophil and monocytes are examples of _____
- **A** Physical barrier
- **B** Cellular barriers
- **C** Cytokine barriers
- **D** Physiological barriers

1.1f IgA and IgG antibodies provide which of the following kinds of immunity to the infant or foetus?
- **A** Natural Active Immunity
- **B** Natural Passive Immunity
- **C** Artificial Active Immunity

D Artificial Passive Immunity

1.1g Which of the following is not an autoimmune disorder?

A Rheumatoid Arthritis
B Multiple sclerosis
C Influenza
D Chronic Hepatitis

1.1h Vaccines against viruses are usually

A Given at birth
B Expensive
C Either live-attenuated or killed
D Mainly polysaccharide

1.1i Immunoglobulins are made:

A In a laboratory from deactivated viruses and bacteria
B From the plasma of a person in the acute phase of an infectious disease
C From the pooled plasma of blood donors
D From protein produced artificially in a laboratory

1.1j Which of the following is not an immune system disorder?

A Allergies
B Immunodeficiency
C Genetic Disorders
D Autoimmune Diseases

1.2 Answer the Following: (MCQ/Short Question/Fill in the Blanks) **[05]**

1.2a What is immunity?

1.2b Passive immunity is fast but lasts for a short duration. True/False

1.2c B-cells and T-cells are two types of cells involved in _____ immunity.

1.2d What are subunit vaccines?

1.2e Describe dendritic cells.

Q.2 Short Notes (Attempt any two) **[06]**

A Lymph nodes and the spleen.

B Classify adjuvants based on the mechanism of action.

C The factors on which Ag–Ab binding depends

Q.3 Explain in detail (Attempt any two) **[14]**

A What are the different types of vaccines developed by scientists?

B Various autoimmune diseases.

C The hematopoietic stem cells (HSC).

Section-II (Total Marks - 30)

Q.1 Short Questions **[10]**

1.1 Objectives **[05]**

1.1a Naturally acquired active immunity would be most likely acquired through which of the following processes?

A vaccination
B drinking colostrum
C natural birth
D infection with disease-causing organism followed by recovery

1.1b Which of the following convey the longest-lasting immunity to an infectious agent?

A Naturally acquired passive immunity
B Artificially acquired passive immunity
C Naturally acquired active immunity
D All of these

1.1c Which of the following substances will not stimulate an immune response unless they are bound to a larger molecule?

A Antigen
B Virus
C Hapten
D Antibody

1.1d B and T cells are produced by stem cells that are formed in:

A Bone marrow
B The liver
C The circulatory system
D The spleen

1.1e B cells mature in the..... while T cells mature in the

A Thymus/bone marrow and gut-associated lymphoid tissue (GALT)
B Spleen/bone marrow and GALT
C Bone marrow and GALT/Thymus
D Liver/Kidneys

1.1f Which of the following immune cells/molecules are most effective at destroying intracellular pathogens?

A T helper cells
B B cells
C Antibodies
D T cytolytic cells

1.1g A living microbe with reduced virulence that is used for vaccination is considered:

A A toxoid
B Dormant
C Virulent
D Attenuated

1.1h B cells that produce and release large amounts of antibody are called:

A Memory cells

B Basophils
C Plasma cells
D Killer cells

1.1i The specificity of an antibody is due to
A its valence
B The heavy chains
C The Fc portion of the molecule
D The variable portion of the heavy and light chain

1.1j B Cells are activated by
A Complement
B Antibody
C Antigen
D Memory cells

1.2 Answer the Following: (MCQ/Short Question/Fill in the Blanks) [05]

1.2a The first concept of humoral immunity was given by _____

1.2b What are memory B cells ?

1.2c What are Cytokines ?

1.2d What are DNA vaccines ?

1.2e An antibody prefers to bind to this small region of the antigen known as ____

Q.2 Short Notes (Attempt any two) [06]

A APCs

B Autoimmune diseases

C Cytotoxic T lymphocytes

Q.3 Explain in detail (Attempt any two) [14]

A Explain causes of autoimmune diseases.

B Explain types of vaccines.

C Describe the hematopoietic stem cells (HSC).