STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2023 - 2024)

M. Sc. DEGREE EXAMINATION - NOVEMBER 2024
BIOTECHNOLOGY
THIRD SEMESTER

COURSE : CORE
PAPER : IMMUNOTECHNOLOGY
SUBJECT CODE : 23BY/PC/IM34
TIME : 3 HOURS MAX. MARKS: 100

Q. No.	SECTION A (10 X 1=10) ANSWER ALL QUESTIONS	CO	KL
1	Which of the following two are two hall marks of the adaptive immune system? a) Immediate and broad b) Specific and memory c) Non-specific and fast d) Immediate and passive	1	1
2	All the following can be part of innate immune responses except a) Natural killer cells b) B cells c) Macrophages d) Alternative pathway of Complement activation	1	1
3	Choose the correct match from the following **Group I** **Group II** A. IgM 1. Present in various body secretions B. IgE 2. Antigen presentation C. IgA 3. Allergic reaction D. MHC 4. Complement activation 5. Ten heavy and ten light chains a) A-4 B-3 C-1 D-5 b) A-5 B-3 C-1 D-2 c) A-5 B-3 C-4 D-1 d) A-3 B-2 C-4 D-5	1	1
4	All the following are true about CD8+ T cells except that they a) are part of adaptive immunity b) respond to antigenic peptides presented by MHC class I molecules c) respond to antigenic peptides presented by MHC class II molecules d) are major mediators of cytotoxicity against virus-infected host cells	1	1
5	Which one of the following is a cell mediated hypersensitive reaction? a) Type I b) Type II c) Type III d) Type IV	1	1

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6	What determines a particular cell should be activated or not? a) Absence of cytokine receptor b) Presence if cytokine receptor c) Cytokine receptor differentiation d) Doesn't need a cytokine at all	1	1
7	Which one of the following is not an example of type IV hypersensitivity? a) Latex allergy b) Contact dermatitis (e.g., contact with poison ivy) c) A positive tuberculin skin test d) Hemolytic disease of the newborn	1	1
8	Tumor antigens are _____ that are inappropriately expressed and found on abnormal cells. a) Self-antigens b) Foreign antigens c) Antibodies d) T-cell receptors	1	1
9	In a direct fluorescent antibody test, which of the following would we most likely be looking for using a fluorescently-labeled mAb? a) Bacteria in a patient sample b) Bacteria isolated from a patient and grown on agar plates c) Antiserum from a patient smeared onto a glass slide d) Antiserum from a patient that had bound to antigen-coated beads	1	1
10	For many uses in the laboratory, polyclonal antibodies work well, but for some types of assays, they lack sufficient _____ because they cross-react with inappropriate antigens. a) Specificity b) Sensitivity c) Accuracy d) Reactivity	1	1
Q. No.	**SECTION B (5 X 2= 10)** **ANSWER ALL QUESTIONS**	**CO**	**KL**
11	Comment on macrophages.	1	2
12	Define adjuvants.	1	2
13	Illustrate the structure of class I MHC.	1	2
14	List any two features of autoimmune diseases with examples.	1	2
15	Comment on cross reactivity.	1	2
Q. No.	**SECTION C (4 X 10= 40)** **ANSWER ALL QUESTIONS**	**CO**	**KL**
16	Differentiate humoral and cell mediated immunity. **OR** Classify leucocytes and outline its functions.	2	3
17	Discuss the process of T-cell development and differentiation. **OR** Explain the antigen processing and presentation pathways.	2	3

18	Give a detailed account on hypersensitivity reactions. **OR** Describe tumor progression and immune pathways.	3	4
19	Write about the steps involved in performing ELISA. **OR** Discuss animal experimental systems in immunotechnology.	3	4
Q. No.	**SECTION D (2X 20=40)** **ANSWER ALL QUESTIONS**	**CO**	**KL**
20	Explain the genetic basis of antibody types and diversity. **OR** Discuss the complement system and its functions in detail.	4	5
21	Elucidate vaccine preventable diseases. **OR** Review the applications of immunohistochemistry and flow cytometry in disease diagnosis.	5	6

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