Reg. No ..... Name **23P2021**

M. Sc. DEGREE END SEMESTER EXAMINATION : MARCH 2023

SEMESTER 2 : BOTANY

COURSE : **21P2BOTT06: MOLECULAR BIOLOGY AND IMMUNOLOGY**

(For Regular - 2022 Admission and Supplementary - 2021 Admission)

Duration : Three Hours Max. Weights: 30

PART A

Answer any 8 questions **Weight: 1**

1.	Give an account on dicer?	(R)
2.	Write a brief account on telomere.	(U, CO 2)
3.	State the differences between prokaryotic and eukaryotic ribosomes.	(An)
4.	Explain inducers and repressors.	(An)
5.	What you mean by RNA editing?	(U, CO 2, CO 4, CO 5)
6.	What are plasma cells?	(U, CO 1)
7.	What is meant by cross reactivity?	(R, CO 1)
8.	Explain hoogesteen Base Pairing.	(U, CO 5)
9.	Enumerate the significance of protein sorting.	(A, CO 3, CO 5)
10.	Briefly explain C-value paradox.	(U, CO 2)

(1 x 8 = 8)

PART B

Answer any 6 questions **Weights: 2**

11.	Write a short note on origin selection and activation by the initiator protein in DNA replication.	(U, CO 2)
12.	Evaluate the structure and functions of tRNA and mRNA.	(E, CO 2)
13.	Compare the roles of general transcription factors and transcriptional activator proteins.	(E, CO 3, CO 5, CO 6)
14.	Discuss the advantages of recombinant vaccines?	(E, CO 1)
15.	Explain the process of insertion of proteins into ER membrane.	(U, CO 3, CO 4)
16.	Explain the end replication problem in eukaryotes.	(U, CO 2)
17.	Discuss various methods of antibody engineering.	(E, CO 1)
18.	Justify one gene one polypeptide hypothesis.	(E, CO 3, CO 5, CO 6)

(2 x 6 = 12)

PART C

Answer any 2 questions **Weights: 5**

19.	Write an essay on molecular mechanism of recombination.	(U, CO 2)
20.	Illustrate and discuss the structure and functions of antibody molecules. Explain how they are involved in antigen - antibody interactions and the elimination of antigens.	(E, CO 1)

21. Write an essay on the structure and functions of different types of RNAs (U, CO 6)

22. Explain the process of splicing mediated by spliceosome. Give an account on type I and type II introns. (U, CO 2, CO 3, CO 5)

(5 x 2 = 10)

OBE: Questions to Course Outcome Mapping

CO	Course Outcome Description	CL	Questions	Total Wt.
CO 1	Explain the basic properties, structure and functions of genetic materials and molecules associated with the immune system.	U	6, 7, 14, 17, 20	11
CO 2	Explain the central dogma of molecular biology.	R	2, 5, 10, 11, 12, 16, 19, 22	19
CO 3	Develop a thorough knowledge in gene expression mechanisms.	E	9, 13, 15, 18, 22	12
CO 4	Analyze the mechanism of DNA repair systems.	An	5, 15	3
CO 5	Examine the alternate forms of DNA and its significance	E	5, 8, 9, 13, 18, 22	12
CO 6	Classify various RNA molecules and its diverse functions in biological systems.	R	13, 18, 21	9

Cognitive Level (CL): Cr - CREATE; E - EVALUATE; An - ANALYZE; A - APPLY; U - UNDERSTAND; R - REMEMBER;