MSc DEGREE END SEMESTER EXAMINATION - MARCH/APRIL 2019

SEMESTER 2 : BOTANY

COURSE : **16P2BOT06 : MOLECULAR BIOLOGY AND IMMUNOLOGY**

(For Regular – 2018 Admission and Supplementary – 2017/2016 Admissions)

Time : Three Hours   Max. Marks: 75

Section A
Answer any 8 (2 marks each)

1.   Explain H-DNA.
2.   Briefly explain C-value paradox.
3.   What is meant by Cot curve?
4.   What are the peculiarities of replication origin and fork in prokaryotes?
5.   Write a brief account on telomere.
6.   Give an account on IS elements.
7.   Differentiate between SnRNA and micro RNA.
8.   Enumerate the significance of protein sorting.
9.   Give an account on various types of sigma factors and their functions.
10. Explain inducers and repressors.
11. Give an account on various humoral components involved in the process of inflammation.
12. Name any two cytokines. What is their chemical nature?

$$(2 \times 8 = 16)$$

Section B
Answer any 7 (5 marks each)

13. Give an account on DSB repair pathway.
14. What are the biological roles of site specific recombination?
15. What are the genetic consequences of the mechanism of homologous recombination?
16. Give an account of processing of pre-rRNA.
17. Briefly explain RNA Polymerase III promoters.
18. Write an account on splicing mechanisms of group I, II, III introns.
19. Explain the genetic control of lytic growth in λ phage.
20. What are the applications of monoclonal antibodies?
21. Discuss the various methods of antibody engineering.
22. What are polyvalent vaccines? What is their advantage?

$$(5 \times 7 = 35)$$

Section C
Answer any 2 (12 marks each)

23. Give a detailed account on DNA repair mechanism. Add a note on ageing.

OR

24. Explain the molecular mechanism of DNA replication initiation in eukaryotes.

25. Briefly explain the process of transcription in prokaryotes.

OR

26. Discuss the processes and events leading to antibody diversity. Write a note on RAG proteins.

(12 x 2 = 24)