TM142040C **Reg. No…….....…….**

Name…….....

M. Sc. DEGREE (C.S.S.) EXAMINATION, APRIL 2017
Supplementary (2014 Admission)
SEMESTER II - BOTANY
BOT2CMB – CELL AND MOLECULAR BIOLOGY

Time: Three Hours **Maximum Weight: 30**

PART A

I. Answer any six questions. Each question carries a weight of 1

1. Differentiate between Sn RNA and Micro RNA.
2. What is SOS repair?
3. How does DNA methylation regulate gene expression?
4. Explain the role of kinesins as molecular motors.
5. Write a note on the importance of SRP in protein targeting.
6. What is the significance of lipids in the cell membrane?
7. Give an account on sigma factors and their role in transcription.
8. Enumerate the importance of repetitive DNA in molecular studies.

(6x1=6)

PART B

II. Answer any seven questions. Each question carries a weight of 2

9. Explain nucleotide excision DNA repair mechanism in prokaryotes.
10. Differentiate between peroxisomes and glyoxysomes based on their structure and function.
11. Explain splicing mechanism with special reference to tRNA introns.
12. Briefly explain the molecular mechanisms involved in programmed cell death.
13. Describe gene control in lytic phages.
14. Write a note on the molecular mechanisms involved in homologous recombination.
15. With the help of a diagram, explain the important features of the structure of the DNA.
16. Give an account on the salient features of the mRNA that enables translation.
17. Explain the role of secondary messengers in signal transduction.
18. Describe the CAP regulation of the *lac* operon.

(7x2=14)

PART C

III. Answer any two questions. Each question carries a weight of 5

19. Explain the mechanism of regulation of gene expression at the chromatin level in eukaryotes.
20. Give a comparative account on the process of DNA replication in prokaryotes and eukaryotes.
21. Write an account on eukaryotic RNA polymerases and the process of transcription.

(2x5=10)