Reg. No..... Name: **P218**

M SC DEGREE END SEMESTER EXAMINATION – MAY 2015

M SC BOTANY SEMESTER - 2

COURSE: P2BOTT06 - CELL AND MOLECULAR BIOLOGY

Time: 3 Hours Max. Marks: 75

I. Answer any **eight** questions. Each question carries two marks

1. Distinguish between the three nuclear RNA polymerases of eukaryotes.
2. Differentiate between mini- and microsatellites.
3. What is spliceosome?
4. Describe the proof reading process during DNA replication.
5. What is Pribnow box? What is its function?
6. Differentiate between monocistronic and polycistronic mRMA.
7. Describe the role and significance of telomerase.
8. What are cell cycle checkpoints? What is its importance?
9. What is apoptosis?
10. 'Plant glyoxysomes are a type of peroxisome.' Justify the statement.
11. What is the role of DNA polymerase I in DNA replication?
12. Differentiate between nucleoside and nucleotide.

(2 x 8 = 16)

II. Answer any **seven** questions. Each question carries five marks

13. What is signal hypothesis? What are the common characters of signal sequences?
14. Describe the organization of nucleosomes.
15. Comment on the endosymbiont hypothesis regarding the evolution of mitochondria and chloroplast.
16. Draw the diagram of a mature eucaryotic mRNA (nucleotide sequences not expected) showing all the important features.
17. What are the different phases in cell cycle?
18. Explain the events involved in the initiation of translation in procaryotes. Draw a schematic diagram of the process.
19. Describe the chemical structure of plasma membrane.
20. Explain the semidiscontinuous replication of DNA.
21. Describe the structure of chloroplast.
22. What is the composition and structure of cytoskeleton

(7 x 5 = 35)

III. Answer any **two** questions. Each question carries twelve marks

23. What are the post-transcriptional modifications made in eukaryotic pre-mRNAs?

OR

24. Describe the genetic control of lytic and lysogenic growth of Lambda phage

25. What is cell signaling? What are the basic elements in cell signaling systems?

OR

26. *Lac* operon is under both negative and positive control. Explain.

(12 x 2 = 12)