STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2011 – 2012 & thereafter)

SUBJECT CODE: 11BT/MC/CB54

B. Sc. DEGREE EXAMINATION, NOVEMBER 2016
BRANCH V (a) – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY
FIFTH SEMESTER

COURSE : MAJOR – CORE
PAPER : CELL BIOLOGY
TIME : 3 HOURS MAX.MARKS:100

SECTION – A

ANSWER ALL QUESTIONS (18 x 1=18 marks)

I. CHOOSE THE CORRECT ANSWER: (5 X 1 = 5 marks)

1. Cell Theory was proposed by
   a) Beadle and Tatum b) Robert Hooke
   c) Schleiden and Schwann d) Leeuwenhoek
2. The main function of a centrosome is
   a) Secretion b) Protein synthesis
   c) Osmoregulation d) Formation of a spindle fibre
3) Assembly of two subunits 40S and 60S of a ribosome is
   a) 100S unit b) 80 S unit
   c) 70 S unit d) 90S unit
4) The membrane around the vacuole is called
   a) cytoplast b) tonoplast
   c) amyloplast d) elaioplast
5) Semiautonomous organelle in the cell is
   a) mitochondria b) Peroxisomes
   c) Endoplasmic reticulum d) Golgi body

II. FILL IN THE BLANKS: (5 x 1 = 5 marks)

6. A framework of protein scaffolds called the _____ provides the cytoplasm and the cell with their structure.
7. _____ is the name of the model plant widely used in research.
8. _____ are fine channels passing through the plant cell wall and middle lamella.

9. Microfilaments are composed of a protein called_____.
10. Plant cell wall is mainly composed of _____.

III. TRUE OR FALSE: (4 x 1 = 4 marks)

11. SER is well developed in cells engaged in lipid metabolism.
12. Lysosomes were discovered by de Duve in 1955.
13. The term cell was coined by de Bary when he examined cork tissue.
14. Plasmodesmata is a thin layer of cementing material found in adjacent plant cells.

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IV. MATCH THE FOLLOWING: (4 x 1 = 4 marks)

15. Nucleus	Protective barrier
16. Cell membrane	Storage of genetic information
17. Cell wall	Storage organelles
18.Vacuoles	Structure and rigidity to the cell

ANSWER ANY <u>SIX</u> QUESTION:
Each answer should not exceed 50 words. (6x3=18 marks)

19. Polyribosomes
20. Histones
21. Chiasmata
22. Heterochromatin
23. Tubulin
24. Karyolymph
25. Okazaki fragments
26. Centriole
27. Elementary particles

SECTION B

ANSWER ANY <u>FOUR QUESTIONS.</u> EACH ANSWER SHOULD NOT EXCEED 200 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY. (4x6=24 marks)

28. Describe the ultrastructure of chloroplast with a suitable diagram.
29. Enumerate upon the Meselsohn and Stahl's experiment.
30. What role does photoreactivation have in DNA repair?
31. Highlight the importance of the fluid mosaic model.
32. Briefly describe lampbrush and polytene chromosomes. Illustrate wherever necessary.
33. Elaborate upon the biochemical structure and types of DNA.

SECTION C

ANSWER ANY <u>TWO QUESTIONS.</u>EACH ANSWER SHOULD NOT EXCEED 1000 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY. (2x20=40 marks)

34. Describe how the nucleus is organized in the cell. What is the structure and function of the nucleolus and add a note on the nucleolar organizing region.
35. How is DNA replicated in *E.coli* ? What are the enzymes involved ?
36. Enumerate upon the structure and function of microtubules in cilia and its basal body.
37. Write an essay describing the various stages of meiosis. Draw suitable diagrams.

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