STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2011 – 12)

SUBJECT CODE:11BT/MC/CB54

B. Sc. DEGREE EXAMINATION, NOVEMBER 2013
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. The middle lamella is composed of
   (a) Cellulose (b) Lignin (c) Calcium pectate
2. The plate-like structures that are the major component of the Golgi apparatus are the
   (a) Cisternae (b) Tubules (c) Vesicles
3. The Nucleolus was first reported by
   (a) Robert Brown (b) Benda (c) Fontana
4. Which of the following is an enzyme involved in DNA repair?
   (a) Helicase (b) Photolyase (c) Primase
5. Which is the quiescent phase of the cell cycle?
   (a) M-phase (b) S-phase (c) G_0 phase

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

6. The model of plasma membrane proposed by Singer and Nicolson is called --------
7. The base of the flagellum arises from the ----------.granule.
8. The Salivary gland chromosomes of Drosophila are called ----------.
9. The enzyme involved in the unwinding of the DNA helix is called ----------.
10. The homologous chromosomes appear long and thread like during the ---------- stage of meiotic prophase I.

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

11. When the chromosome lacks a centromere it is termed acentric.
12. The pigments of photosynthesis are located in the thylakoids of the granum.
13. H1 is the type of histone present in the linker DNA.
14. The semi-conservative mode of DNA replication was described by Schleiden and Schwann.

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

15. Terminalisation of chaisma	- Polytene
16. Annular thickenings of cell wall	- Diplotene
17. Smooth Endoplasmic reticulum	- Rings
18. Giant chromosomes	- Lipid synthesis

ANSWER ANY SIX QUESTION:
Each answer should not exceed 50 words. 6x3=18 marks

19. Plasmodesmata
20. Thylakoid
21. Arabidopsis
22. Synapsis
23. Unit membrane
24. Cytoskeleton
25. Heterochromatin
26. Nucleotide
27. Okasaki fragments

SECTION B

ANSWER ANY FOUR QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 200 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY. 4x6=24 marks

28. Write notes on the ultrastructure of the flagella.
29. Explain the functions of the Endoplasmic reticulum .
30. Describe the structural components of the golgi body.
31. Write notes on Giant chromosomes.
32. Explain the chromosome banding technique .
33. Describe the sub-stages of Prophase I of Meiosis .

SECTION C

ANSWER ANY TWO QUESTIONS.EACH ANSWER SHOULD NOT EXCEED 1000 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY. 2x20=40 marks

34. Give an account of the chemical composition, ultrastructure and functions of the plasma membrane.
35. Describe the ultrastructure and origin of the Mitochondrion.
36. Write an essay on the ultrastucture of the Nucleus.
37. Describe the different modes of replication of DNA. Add a note on DNA repair.

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