

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2010 – 11)

SUBJECT CODE: BT/MC/CB54

B. Sc. DEGREE EXAMINATION, NOVEMBER 2012
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

- Which one of the following does not have unit membrane?
a. Chloroplast b. Mitochondria c. Dictyosome d. Cell wall
- Nucleus was discovered by-----.
a. Robert Hook b. Robert Brown c. Anton Von d. Robinson
- Cell wall is synthesized with the help of -----.
a. Golgi bodies b. Nucleus c. Chloroplast d. Ribosome
- Statement A : Tubulins and Dynein are proteins of cilia
Statement B : G bands and C bands are used to identify mitochondria.
a. Statement A is correct but B is not correct.
b. Statement A is not correct but B is correct
c. Both A and B are correct
d. Both A and B are not correct
- Crossing over takes place during
a. Leptotene b. Zygotene c. Pachytene d. Diplotene

II. FILL IN THE BLANKS

5 x 1 = 5 marks

- Vesicles of Golgi bodies give rise to -----.
- During ----- phase, chromosomes arrange in an equatorial plane.
- Widely accepted model of plasma membrane structure is -----.
- Ribosomes associated with chloroplast are ----- type.
- are involved in spindle formation during cell division.

III. TRUE OR FALSE

4 x 1 = 4 marks

- The protoplasmic interconnections between cells are plasmodesmata.
- Mitochondrial DNA is double stranded, linear with histones.
- Facultative heterochromatin is responsible for regular metabolic reactions.
- Mitosis normally takes place in reproductive organs.

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

- | | |
|---------------------------|------------------|
| 15. Endoplasmic Reticulum | (i) Meyer |
| 16. Dictyosome | (ii) Kolliker |
| 17. Mitochondria | (iii) Camillo |
| 18. Chloroplast | (iv) Christensen |

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

19. Grana
20. Middle lamella
21. Thylakoids
22. Organization of centriole
23. Nucleosome
24. MAP kinase
25. S - phase
26. Synapsis
27. Cell theory

SECTION B

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

28. Explain the ultra structure of a plant cell wall with diagram.
29. Bring out the structural features of Golgi bodies.
30. Explain the organization of the nuclear envelop.
31. Briefly explain the functions of ER.
32. Comment on the Developmental biology in *Arabidopsis thaliana*.
33. Illustrate and explain the structure of lampbrush chromosome. Give its significance.

SECTION C

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

34. Describe various models that explain the structure of cell membrane.
35. Illustrate and explain the ultrastructure of Mitochondria. Add a note on its biogenesis.
36. With suitable diagrams, explain the molecular organization of a chromosome.
37. Draw diagrams only with neat labeling on the various stages of Meiosis.
