

B. Sc. DEGREE EXAMINATION, NOVEMBER 2011
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

- The thickness of the plasma membrane is
a) 70-100Å° b) 50-80Å° c) 60-100-Å° d) 65-85Å°
- Elementary particles are present in
a) Chloroplast b) Golgi bodies c) Mitochondria d) Nucleus
- Cell surface receptors are classified into
a) Three groups b) Five groups c) Four groups d) Six groups
- The nucleolus was first discovered by
a) Robert Brown b) Fontana c) Rudkin d) Penmar
- The synopsis of homologous chromosomes takes place during
a) Leptotene stage b) Zygotene stage c) Pachytene stage d) Diplotene stage

II. FILL IN THE BLANKS

5 x 1 = 5 marks

- The cell theory was formulated by two German microscopist _____ and_____.
- Z DNA has _____ base pairs.
- The nuclear pores are closed by circular structures called_____.
- The resting phase of the cell division is called_____.
- The cavity of the ER is well developed and act as a passage for_____.

III. TRUE OR FALSE

4 x 1 = 4 marks

- Mitochondrial DNA contains more guanine and cytosine
- Xylon is present in tertiary cell wall in addition to cellulose.
- The meiosis maintains a definite and constant number of chromosomes in the organism.
- The enzyme linked receptors when activated function directly as enzymes.

IV. MATCH THE FOLLOWING

4 x 1 = 4 marks

- | | |
|-----------------------|---------------|
| 15. X-ray diffraction | Ruckert |
| 16. Meiocytes | Ligase |
| 17. Lampbrush | Spermatocytes |
| 18. Nuclear enzyme | DNA |

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

19. Chargaff's rule.
20. G protein.
21. Cisternae.
22. Thylakoids.
23. Histones.
24. Nucleoplasm.
25. Significance of mitosis.
26. Meicytes.
27. Middle lamella.

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

28. Describe the structure of cell wall.
29. Give an account of banding techniques
30. Describe the Prophase I of meiosis.
31. Describe different types of intracellular and cell surface receptors and discuss their role in cell signaling.
32. Give an account of the functions of endoplasmic reticulum.
33. Discuss the different phases of a mitotic cell cycle.

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

34. Describe the different available models for the structure of plasma membrane and discuss the evidences in support of fluid mosaic model.
35. With the help of illustrations describe the structure of a microtubule and its component tubulin subunits and discuss the different functions of microtubules.
36. Discuss the structure and functions of different components of nucleus.
37. Write notes on the ultrastructure of the chloroplast.
