

B. Sc. DEGREE EXAMINATION, NOVEMBER 2015
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 structural unit of eukaryotic chromosome is
a) Nucleosomes b) Nucleotides c) Nucleolus d) Nucleus
- R – banding is the reverse of
a) C - banding b) G - banding c) Q - banding d) T - banding
- During which stage of meiosis does crossing over occur?
a) Prophase II b) Anaphase I c) Prophase I d) Telophase II
- Give the complementary base for G – C – A – T – G - C
a) G – G – T – A – C - G b) C – C – A – G – T - C
c) C – G – A – A – C - G d) C – G - T - A - C - G
- When the chromosomal fibrils are easily separable from each other, such coils are called
a) Plectonematic coils b) Perinematic coil c) Pleuronematic coils
d) Paranematic coils

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

- The ----- is a pectin layer which cements the cell walls of two adjoining cells together
- is the major protein component of Microtubules
- A chromosome with two centromere is known as -----
- F₁ particles are present in -----
- The division of cytoplasm during cell division is known as -----.

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

- Arabidopsis* has one of the smallest genomes among plants.
- Lamp brush chromosomes are present in the oocytes of mammals.
- The condensed region of chromosome is referred to as Euchromatin.
- Synapsis refers to pairing of two homologous chromosomes during meiosis.

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

- | | |
|---------------------|--------------------|
| 15. Cell Wall | Cristae |
| 16. Mitochondria | SSB protein |
| 17. DNA replication | flagellar motility |
| 18. Microtubules | Cellulose |

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

19. Write notes on Plasmodesmata.
20. What is Endocytosis?
21. Briefly describe the structure of Microtubules.
22. Write about mitochondrial DNA
23. What is Secondary constriction?
24. Give an account on Heterochromatin.
25. What is meant by DNA repair mechanism?
26. Differentiate Leading strand from Lagging strand synthesis of DNA
27. What happens during S phase of Cell cycle?

SECTION B

ANSWER ANY FOUR QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 200 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY.

(4x6=24 marks)

28. Write an account on the Secondary wall layers of Plant Cell wall.
29. Describe the structural components of Golgi bodies.
30. Briefly describe the ultra structure of Chloroplast.
31. Give an illustrated account of Polytene Chromosome.
32. Describe the semi conservative mode of DNA replication.
33. Write an account on the organization of Nucleus.

SECTION C

ANSWER ANY TWO QUESTIONS. EACH ANSWER SHOULD NOT EXCEED 1000 WORDS. DRAW DIAGRAMS WHEREVER NECESSARY.

(2x20=40 marks)

34. Discuss various models for the structure of Plasma membrane.
35. Write an account on the morphology, types, origin and functions of Endoplasmic Reticulum.
36. Describe in detail the structure of DNA.
37. Explain the process of mitosis and bring out the differences between mitosis and meiosis.
