



NS – 369

I Semester B.Sc. Examination, Nov./Dec. 2016
(F+R/CBCS)
BIOTECHNOLOGY – I
Cell Biology and Genetics

Time : 3 Hours

Max. Marks : 70

Instruction : Draw **neat** labelled diagrams **wherever** necessary.

SECTION – A

- I. Write short notes on the following : (5×2=10)
- 1) Receptor proteins
 - 2) Significance of meiosis
 - 3) Programmed cell death
 - 4) tRNA
 - 5) Heterochromatin.

SECTION – B

- II. Answer **any four** of the following : (4×5=20)
- 6) Explain any five functions of plasma membrane.
 - 7) Describe the structure and functions of chloroplast.
 - 8) Enumerate differences between mitosis and meiosis.
 - 9) Write an account of chromosome mapping.
 - 10) What is polyploidy ? Add a note on speciation in cotton.

SECTION – C

- III. Answer **any three** of the following : (3×10=30)
- 11) Explain in detail the structure and functions of (a) Cytoskeleton
(b) Endoplasmic reticulum.
 - 12) Describe the nucleosome model of chromosome with neat labelled diagram.
 - 13) What are complementary genes ? Explain with reference to flower color in sweet peas.

S - 369



ET - 2



- 14) a) Write an account of incomplete dominance.
b) In sweet peas, genes C or P alone produce white flowers, the purple color produced due to the presence of both these genes. What will be the flower color of offsprings of the following crosses ?
i) CcPp \times ccPp
ii) CCPp \times ccPP
- 15) a) Explain cytoplasmic inheritance in paramecium.
b) Give an account of Turner's syndrome.

SECTION - D

IV. Answer the following in **a word** or **a sentence each** : (10 \times 1=10)

- 16) What are plasmodesmata ?
17) Name the phase of cell cycle where tubulin synthesis takes place.
18) What is cell senescence ?
19) Who discovered ribosome ?
20) Give the number of carbon atoms present in deoxyribose sugar.
21) Name the type of sex determination found in grasshopper.
22) Which is the genetic disorder produced due to deletion in short arm of 5th chromosome of human being ?
23) What are base analogues ?
24) How many sets of chromosomes are found in
a) Triticum aestivum
b) Gossypium hirsutum.
25) What is reserve food material in plant cells ?