



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  
BMSCW

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.



- 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 × ccPp
  - ii) CCPp × 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 sentence each : (10×1=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 5<sup>th</sup> 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 ?