

The figures in the margin indicate full marks.

Candidates are required to give their answer in their own words as far as practicable.

Illustrate the answers whenever necessary.

Use separate Answer Scripts for Group-A & Group-B

GROUP A

(GENETICS)

1. Answer any two questions from the following:

2×2=4

- What is MOMP ?
- What is snRNP AND mention their role ?
- What happens in the genital ridge in human if y-chromosome is absent?
- What is the role of H1 protein ?

2. Answer any two questions from the following:

2×4=8

- Outline the process of two step lariat model of splicing with appropriate diagram.
- Describe briefly the summary of wnt 4/ β -catenin loop specifying mammalian ovary development.
- Describe the Holiday model with suitable diagram.
- How death inducing signal example is formed?

3. Answer any one question from the following:

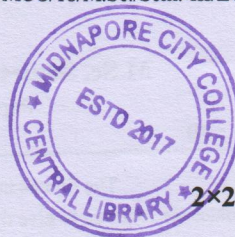
1×8=8

- What are chromatin remodeling factors ? Write the role of acetylation and methylation in chromatin remodeling. 2+3+3
- Describe briefly the function of sex specific lethal gene in sex determination in Drosophila.

(P.T.O)

(2)

GROUP-B
(MOLECULAR BIOLOGY)



4. Answer any two questions from the following:

2×2=4

- a) What is germline gene therapy ?
- b) In *Drosophila*, hybrid dysgenesis manifests when ρ strain males are crossed with M strain females, but not when M strain males are crossed with ρ strain females-why ?
- c) What is the role of TLR in human immunity ?
- d) Which enzyme catalysed the excision and insertion events conducted by transposon?

5. Answer any two questions from the following:

2×4=8

- a) Write brief note on 'gene delivery system'.
- b) What is Antisense gene therapy ? How does it work on particular gene for knock down the particular function ?
- c) Briefly illustrate the role of DNA proofreading and repair in human disease.
- d) Why are transgenic animals considered to be bioreactors ? Discuss the importance of transgenic sheep or cow as bioreactor.

6. Answer any one question from the following:

1×8=8

- a) What is the basic difference between Normal cell and cancer cell ?
There are two fundamental classes of cancer gene in our cell. What are they and what distinguishes them ? Why Philadelphia chromosome cause cancer?
2+4+2
- b) Explain the gene silencing technique, principle and application of gene silencing. Write a short notes on conserved functions of DNA methylation.
4+4
