

2018-19

MCC/18/M.Sc./Sem.-III/BOT/1

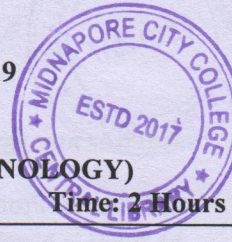
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PG (NEW) CBCS
M.Sc. Semester-III Examination, 2019
BOTANY
PAPER: BOT-301

(CELL BIOLOGY, GENETICS & BIOTECHNOLOGY)

Full Marks: 40

Time: 2 Hours



Write the answer for each unit in separate sheet

UNIT I:

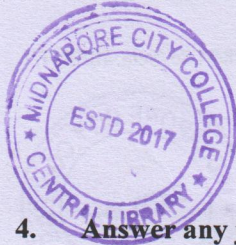
CELL BIOLOGY & GENETICS

1. Answer any two questions of the following: 2×2=4
 - a) Name major three check points in the cell cycle.
 - b) What is G-banding?
 - c) What is Co-dominance?
 - d) Compare the euchromatin and heterochromatin.

2. Write a brief note on: (any two) 4×2=8
 - a) Cyclins.
 - b) Epistasis.
 - c) Paracentric and Pericentric inversion.
 - d) DNA Polymerase (Role in replication of DNA).

3. Answer any one question of the following: 8×1=8
 - a) What is DNA proofreading? How does mismatch repair work? What is meant by Go stage? If Cyclin D is produced constitutively what do you expect to happen? 2+3+3
 - b) What is totipotency? What is the sequence of differentiation in plant tissue culture? What is the possible result of fusion of two genetically different protoplasts? 2+3+3

(P.T.O)



(2)

UNIT II:

BIOTECHNOLOGY4. Answer any two questions of the following:

2×2=4

- a) What is 'Promoter'?
- b) What is Northern blotting?
- c) What is shuttle vector?
- d) What do you mean by fold change of gene expression in Real time PCR?

5. Write a brief note (any two):

4×2=8

- a) Role of plant introduction in agriculture.
- b) DNA isolation protocol.
- c) RFLP.
- d) RNA processing.

6. Answer any one question of the following:

8×1=8

- a) What is transcription bubble? Why transcription and translation happen simultaneously for an mRNA in bacteria? What about the overview of pre mRNA processing in eukaryotes?
2+2+4
- b) What is the principle of polymerase chain reaction? Illustrate briefly the steps of a complete PCR reaction. Write a note on Synthetic Varieties.
2+3+3
