2018-19

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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 consitutively 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)

UNIT II:

BIOTECHNOLOGY

4. Answer any <u>two</u> 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 <u>two</u>): 4×2=8

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

6. Answer any <u>one</u> 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

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