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SECOND YEAR (B.Sc. Biotechnology)
BIO2413: GENETICS
(Semester IV)

Program: B.Sc.
Program Specific: B.Sc. Biotechnology (04)
Course Type: Minor
Paper:

Credits: 2
Time: 2 Hours
Max. Marks: 30
SET: A

Instructions to the candidate:

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.
- 3) Draw a well labelled diagram wherever necessary.

SECTION: A

Q1) Answer the following

[5 X 1= 5]

1. Define: Epistasis.
2. Give any two applications of karyotyping.
3. Trisomy-21 is caused due to ____
4. Define: Chromosome aberrations.
5. What do the symbols a) \odot and b) \square represent in a pedigree chart?

SECTION: B

Q2) Answer the following (Attempt any 5/7)

[5 X 2 =10]

1. Explain euploidy and mention its types.
2. Discuss crossing over with the help of suitable figure.
3. What is nonsense mutation? give example.
4. Comment on albinism.
5. Explain monohybrid cross with a suitable example.
6. Comment on concept of extranuclear inheritance with example.
7. What is meant by Dosage compensation?

(P.T.O.)

SECTION: C

Q3) Answer the following/Write short notes on following (Attempt any 2/4)

[2 X 5 = 10]

1. What is epigenetics? Add a note on underlying mechanisms.
2. Discuss the concept of X-linked inheritance behind colour-blindness.
3. Describe dihybrid cross between tall pea plants having purple flowers and dwarf pea plants having white flowers with the help of a Punnett square.
4. Comment on Down's syndrome.

SECTION: D

Q4) Answer the following (Attempt any 1/2)

[1 X 5 = 5]

1. Discuss the Mendel's laws of heredity, highlighting the phenotypic and genotypic ratios.
2. Explain the Chromosome Theory of Linkage.
