



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 3rd Semester Examination, 2022

CC7-BOTANY

GENETICS

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

GROUP-A

1. Answer any **five** questions from the following: 1×5 = 5
- (a) What is dosage compensation?
 - (b) Name one physical mutagen.
 - (c) Name the cell division stage where crossing over occurs.
 - (d) Give an example of allopolyploidy.
 - (e) Define cistron.
 - (f) What is deamination?
 - (g) What is X-linked inheritance?
 - (h) What is thymine dimer?

GROUP-B

2. Answer any **three** questions from the following: 5×3 = 15
- (a) Discuss the type of linkage with the help of checker board. 5
 - (b) Briefly discuss the molecular basis of crossing over. 5
 - (c) Differentiate between: 2½+2½
 - (i) Interference and coincidence
 - (ii) Dominance and codominance.
 - (d) Discuss the types of structural chromosomal aberration in brief. 5
 - (e) Write short notes on: 2½+2½
 - (i) ABO blood group
 - (ii) Transposons.

GROUP-C

3. Answer any *two* questions from the following: 10×2 = 20
- (a) Describe different types of DNA repair mechanism. 10
- (b) Describe the role of different physical and chemical mutagens. 10
- (c) In peas, seeds can be round (R) or wrinkled (r) and either yellow (Y) or green (y); stem length may result in a tall (T) or dwarf (t) plant. 2+4+4
- (i) In the cross (parent A) TTYyRr × (parent B) TtYyRr, how many different types of gametes can be produced by each parent and how many different phenotypes are possible from the cross?
- (ii) What proportion of the offsprings from the test cross in part would be tall with yellow, wrinkled seeds?
- (iii) In the cross TtYYRr × ttYYrr, what proportion of the offsprings would be expected to be tall plants with round, yellow seeds?
- (d) Discuss the procedure used in preparing a chromosome map with the help of two-point cross. 10

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