

Total number of printed pages-4

3 (Sem-3/CBCS) BOT HC 3

2021

(Held in 2022)

BOTANY

(Honours)

Paper : BOT-HC-3036

(Genetics)

Full Marks : 60

Time : Three hours

***The figures in the margin indicate
full marks for the questions.***

1. Answer the following questions as directed :

1×7=7

(a) Holandric genes on the differential segment of Y-chromosome are inherited only by —

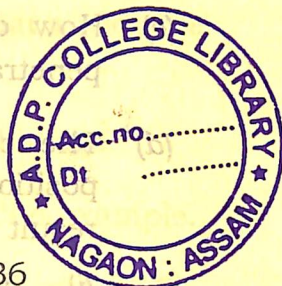
(i) males

(ii) females

(iii) both parents

(iv) None of the above.

(Choose the correct answer)



Contd.

(b) Linked genes do not obey Mendel's _____ law. (Fill in the blank)

(c) How does expressivity differ from penetrance?

(d) The change in the sequence and position of genes (position effect) is the result of —

- (i) duplication
- (ii) translocation
- (iii) inversion
- (iv) deletion.

(Choose the correct answer)

(e) mtDNA shows —

- (i) maternal inheritance
- (ii) nuclear inheritance
- (iii) paternal inheritance
- (iv) None of the above.

(Choose the correct answer)

(f) What do you understand by the word 'Muton'?

(g) Define autosomes.

2. Answer the following questions briefly :

2×4=8

(a) How can you determine that a pedigree is autosomal dominant?

(b) State the significance of linkage.

(c) What is allopolyploidy? Cite example.

(d) Write the full form of EMS and DMS.

3. Answer **any three** of the following questions : 5×3=15

(a) What is the difference between incomplete dominance and co-dominance? Cite examples.

(b) Write a short note on Role of Transposons in Mutation.

(c) 'It is said that inversion suppresses crossing over' — Explain.

(d) Write a short note on Hardy-Weinberg law.

(e) Write briefly on euploidy.

4. Answer the following questions : $10 \times 3 = 30$

- 8=
(a) What is polygenic inheritance? Explain with a suitable example. $2+8=10$

OR

Explain different types of DNA repair mechanisms. What would be the consequences if DNA repair mechanisms were not there? $6+4=10$

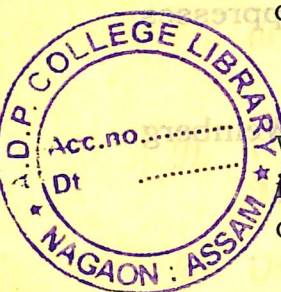
- (b) What are sex chromosomes? Explain sex-linked inheritance with the help of example. $2+8=10$

OR

What do you understand by extra-chromosomal inheritance? Discuss about chloroplast inheritance in Four o'clock plant. $2+8=10$

- (c) Write a note on the CIB method of detection of mutation. 10

OR



What are chemical mutagens? Write in brief about base analogues and deamination. $2+8=10$