

RAN-2403001303022001 / 2503000503021111
B.Sc. Biotechnology (Sem. III) Examination November - 2025
Fundamentals Genetics (NCF-NEP) MAJOR - 2
Time: 1 Hour]
[Total Marks: 25
સૂચના : / Instructions

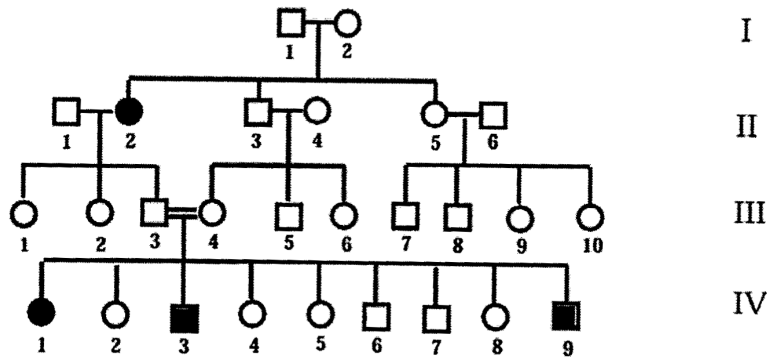
- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book

Seat No.:

Student's Signature

Q-1.
Short question / One word answer
(5 marks)

- If a couple wants to have two children, what is the probability that they will have at least one girl?
- Mention types of translocation.
- Define genetics and mention who is the father of experimental genetics?
- Given below is a pedigree chart showing the inheritance of a certain sex-linked trait humans, the trait traced in the below pedigree chart is



- What is an autosomal recessive disorder? Give an example
- Which environmental factor determines sex in tortoises?

Q-2.
Short Note (Any 2 out of 3)
(10 marks)

- Describe the concept of gene action and how it relates to dominant, recessive, and codominant alleles.
- Explain the concept of multiple allelism with a suitable example.
- Scale coloration of lizards has a complete dominance relationship where green scales are dominant over blue scales. There are 1,024 individuals with the genotype GG, 512 individuals with the genotype Gg, and 64 individuals with the genotype gg. Find: the frequency of the dominant and recessive alleles and the frequency of individuals with dominant, heterozygous, and recessive genotype.

Q-3. Short Note (Any 2 out of 3) (10 marks)

- a) Discuss Numerical chromosomal aberration.
 - b) Write note on Cytogenetic mapping.
 - c) Describe how Fluorescent In Situ Hybridization (FISH) is used to detect chromosomal abnormalities with an example.
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