



12th Science- : Biology
Inheritance and Variation,

DATE:

TIME: 1 hour

MARKS: 25

SEAT NO:

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Note:-

1. All Questions are compulsory.
2. Numbers on the right indicate full marks.

Section A

Q.1 Select and write the correct answer.

(4)

1. Webbed neck is characteristic of _____.
A) XXY sex chromosomes B) XY sex chromosomes
C) XYY sex chromosomes D) XO sex chromosomes
2. If the centromere is situated near the end of the chromosome, the chromosome is called
A) Metacentric B) Acrocentric
C) Sub-Metacentric D) Telocentric
3. The number of sex chromosomes in a somatic cell of female suffering from Down's and Turner's syndromes is _____.
A) 4 B) 3
C) 2 D) 1
4. The number of sex chromosomes in a person suffering from Down's syndrome is _____.
A) 4 B) 3
C) 2 D) 1

Q.2 Answer the following.

(3)

1. What is karyotype?
2. What is sex ratio and what does it indicate?
3. How are hybrid seeds produced?

Section B
Attempt any Four

- Q.3 How many chromosomes are present in human somatic and reproductive cell? **(2)**
- Q.4 What are Mendelian deviations? **(2)**
- Q.5 Why sex linked traits appear more in males? **(2)**
- Q.6 How is a molecule of haemoglobin formed? **(2)**
- Q.7 Match the column-I with column-II and re-write the matching pairs. **(2)**

Column-I

Column-II

- | | |
|---------------------|---------------------------|
| 1. 21 trisomy | a. Turner's syndrome |
| 2. X-monosomy | b. Klinefelter's syndrome |
| 3. Holandric traits | c. Down's syndrome |
| 4. Feminized male | d. Hypertrichosis |

- Q.8 Study the types of chromosome according to position of centromere. Observe and complete the following table. (2)

Types of Chromosome	Name of Chromosome	Position of Centromere
	Metacentric	
		
	Acrocentric	
		At one end

Section C
Attempt any Two

- Q.9 There are 16 possible individuals in F_2 generation. Try to find out the phenotypes as well as the genotypic and phenotypic ratios. (3)
- Q.10 Write a note on crossing over. (3)
- Q.11 Distinguish between: Incomplete dominance and Co-dominance (3)

Section D
Attempt any One

- Q.12 Explain the experiment performed by T. H. Morgan on drosophila, to study linkage and recombination of genes. (4)
- Q.13 Give graphic representation of monohybrid cross. (4)