1. **Assertion – Reasoning based question.** (1)

This consists of two statements- Assertion (A) and Reason (R). Answer the question selecting the appropriate option given below:

(a) Both A and R are true, and R is the correct explanation of A.

(b) Both A and R are true, and R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

Assertion: Mouse whose tails are cut, produce offspring with tail.

Reason: Cutting of tails do not make any change in the genes.

2. Mustard was growing in two fields- A and B. While field A produced brown coloured seeds, field B produced yellow-coloured seeds. It was observed that in field A, the offsprings showed only the parental trait for consecutive generations, whereas in field B, majority of the offsprings showed a variation in the progeny. What are the probable reasons for these? (2)

3. A blue coloured flower plant denoted by BB is crossbred with that of white coloured flower plant denoted by bb. Illustrate the following with the help of a cross.

(a) State the colour of flower you would expect in their F_1 generation plants.

(b) What must be the percentage of white flower plants in F_2 generation if flowers of F_1 generation plants are self- pollinated?

(c) State the expected ratio of the genotypes BB and Bb in the F_2 progeny. (3)

4. (a) What are acquired traits? Give an example. Explain why are these traits generally not inherited over generations?

(b) What percentage of the plants in the F_2 generation were round, in Mendel's cross between round and wrinkled pea plants? (3+1=4)

5. (a) In the following crosses write the genotype and phenotype of the progeny. (3)

CROSS	PROGENY
i) RRYY x rryy round, yellow x wrinkled, green	
ii) RrYy x RRYY round, yellow x round, yellow	
iii) RrYy x rryy round, yellow x wrinkled, green	

(b) 'The sex of a newborn child is matter of chance and none of the parents may be considered responsible for it.' Justify this statement with the help of a diagram. (2)