

SAINIK SCHOOL GOPALGANJ
ASSIGNMENTS
BIOLOGY

Chapter 09 : Heredity and Evolution
General Instructions

Class: X

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1. All questions are compulsory.
 2. Question 1 to 10 is multiple choice questions.
 3. Question 11 to 15 is short answer questions.
 4. Question 16 to 20 is long answer questions
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Q 1. A cross between a tall pea-plant (TT) and a short pea-plant (tt) resulted in progenies that were all tall plants because

- (a) tallness is the recessive trait.
- (b) shortness is the dominant trait.
- (c) height of pea-plant is not governed by gene T or t.
- (d) tallness is the dominant trait.

Q 2. The number of pairs of sex chromosomes in the zygote of a human being is

- (a) 2
- (b) 3
- (c) 1
- (d) 4

Q 3. A zygote which has an X-chromosome inherited from the father will develop into a

- (a) girl
- (b) boy
- (c) either boy or girl
- (d) X-chromosome does not influence the sex of a child.

Q 4. A man with blood group A marries a woman having blood group O. What will be the blood group of the child?

- (a) O only
- (b) A only
- (c) AB
- (d) Equal chance of acquiring blood group A or blood group O.

Q5. What does the progeny of a tall plant with round seeds and a short plant with wrinkled seeds look like?

- (a) All are tall with round seeds.
- (b) All are short with round seeds.

- (c) All are tall with wrinkled seeds.
- (d) All are short with wrinkled seeds.

Q 6. If a round, green seeded pea-plant (RRyy) is crossed with a wrinkled yellow seeded pea- plant (rrYY), the seeds produced in F₁ generation are

- (a) round and green (b) round and yellow
- (c) wrinkled and green
- (d) wrinkled and yellow

Q14. Which of the following decides the sex of the child?

- (a) male gamete, i.e., sperm
- (b) female gamete, i.e., ovum
- (c) both sperm and ovum
- (d) mother

Q 7. Pure-bred pea plant A is crossed with pure-bred pea plant B. It is found that the plants which look like A do not appear in F₁ generation but re-emerge in F₂ generation. Which of the plants A and B are tall and dwarf?

- (a) A are tall and B are dwarf.
- (b) A are tall and B are also tall.
- (c) A are dwarf and B are also dwarf
- (d) A are dwarf and B are tall

Q 8. In humans if gene B gives brown eyes and gene b gives blue eyes, what will be the colour of eyes of the persons having combinations

- (i) Bb and (ii) BB? .
- (a) (i) Blue and (ii) Brown
- (b) (i) Brown and (ii) Blue
- (c) (i) Brown and (ii) Brown
- (d) (i) Blue and (ii) Blue

Q 9. A cross between two individuals results in a ratio of 9 : 3 : 3 :1 for four possible phenotypes of progeny. This is an example of a

- (a) Monohybrid cross
- (b) Dihybrid cross
- (c) Test cross
- (d) F₁ generation

Q10. Which of the following characters can be acquired but not inherited?

- (a) Colour of skin
- (b) Size of body
- (c) Colour of eyes
- (d) Texture of hair

Q11. What is a sex chromosome?

Q12. "The sex of the children is determined by what they inherit from their father and not their mother." Justify.

Q13. Distinguish between acquired and inherited traits by giving one example of each. Why are traits acquired during the lifetime of an individual not inherited?

Q14. A blue colour flower plant denoted by BB is cross bred with that of white colour flower plant denoted by bb.

- (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 plants are self-pollinated?
- (c) State the expected ratio of the genotypes BB and Bb in the F_2 progeny.

Q15. If we cross pure-bred tall (dominant) pea plant with pure-bred dwarf (recessive) pea plant we will get pea plants of F_1 generation. If we now self-cross the pea plant of F_2 generation, then we obtain pea plants of F_2 generation.

- (a) What do the plants of F_2 generation look like?
- (b) State the ratio of tall plants to dwarf plants in F_2 generation.
- (c) State the type of plants not found in F_2 generation but appeared in F_2 generation, mentioning the reason for the same.

Q16. State the meaning of inherited traits and acquired traits. Which of the two is not passed on to the next generation? Explain with the help of an example.

Q17. How is the equal genetic contribution of male and female parents ensured in the progeny?

Q18. The human beings who look so different from each other in terms of colour, size and looks are said to belong to the same species. Why? Justify your answer.

Q19. Describe Mendel's law of inheritance.

Q20. Define Genetics. What is the contribution of Mendel in the field of genetics?