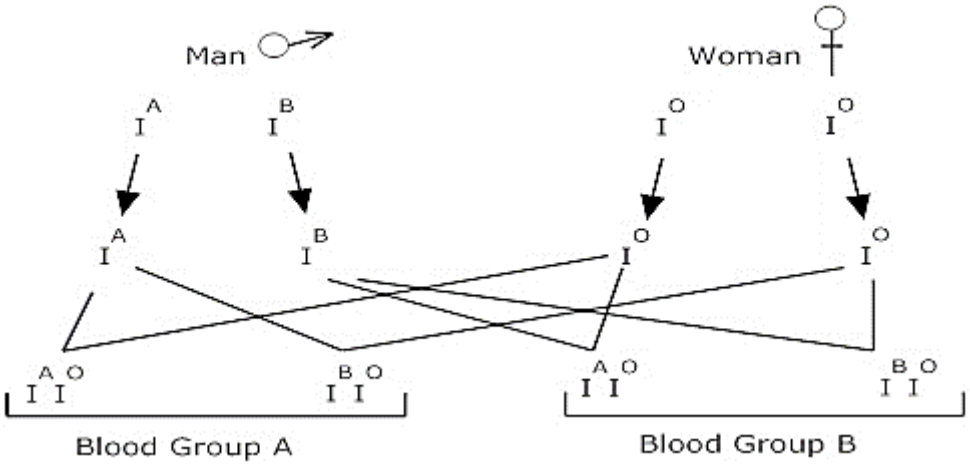
Board – CBSE	Class – 12	Topic – Principles of Inheritance and Variation

1. Identify the sex of organism as male or female in which the sex chromosome are found as
   (i) ZW in bird (ii) XY in Drosophila (iii) ZZ in birds. (iv) XO in grasshopper.
2. Mention two differences between Turner s syndrome and Klinefelter's syndrome.
3. The human male never passes on the gene for haemophilia to his son. Why is it so?
4. Mention four reasons why Drosophila was chosen by Morgan for his experiments in genetics.
5. Differentiate between point mutation and frameshift mutations.
6. Give any two similarities between behaviour of genes (Mendel's factor) during inheritance & chromosomes during cell division.
7. Which law of Mendel is universally accepted? State the law?
8. How will you find out whether a given plant is homozygous or heterozygous?
9. Why do sons of haemophilic father never suffer from this trait?
10. How is the child affected if it has grown from the zygote formed by an XX-egg fertilized by Y-carrying sperm? What do you call this abnormality?
11. The map distance in certain organism between genes A & B is 4 units, between B & C is units, & between C & D is 8 units which one of these gene paves will show more recombination frequency? Give reason.
12. Give the chromosomal constitution & related sex in each of the following :-
    (i) Turner syndrome
    (ii) Klinefilter syndrome
13. What is pedigree Analysis? How is it useful?
14. What are multiple alleles? Give an example?
15. A woman with O blood group marries a man with AB blood group
    (i) work out all the possible phenotypes and genotypes of the progeny.
    (ii) Discuss the kind of dominance in the parents and the progeny in this case.
16. Explain the cause of Klinefelters syndrome. Give any four symptoms shown by sufferer of this syndrome.
17. In Mendels breeding experiment on garden pea, the offspring of F2 generation are obtained in the ratio of 25% pure yellow pod, 50% hybrid green pods and 25% green pods State (i) which pod colour is dominant (ii) The Phenotypes of the individuals of F1 generation. (iii) Workout the cross.

18. In Antirrhinum majus a plant with red flowers was crossed with a plant with white flowers. Work out all the possible genotypes & phenotypes of F1 & F2 generations comment on the pattern of inheritance in this case?

19. A red eyed male fruit fly is crossed with white eyed female fruit fly. Work out the possible genotype & phenotype of F1 & F2 generation. Comment on the pattern of inheritance in this cross?

20. A man with AB blood group marries a woman with O group blood.



(i) Work out all the possible phenotypes & genotypes of the progeny.

(ii) Discuss the kind of domination in parents & progeny in this case?

21. In an cross made between a hybrid tall & red plant (TtRr) with dwarf & white flower (ttrr). What will be the genotype of plants in F1 generation?

22. How sex is determined in human brings?

23. A smooth seeded & red – flowered pea plant (SsRr) is crossed with smooth seeded & white flowered pea plant (Ssrr). Determine the phenotypic & genotypic ratio in f1 progeny?

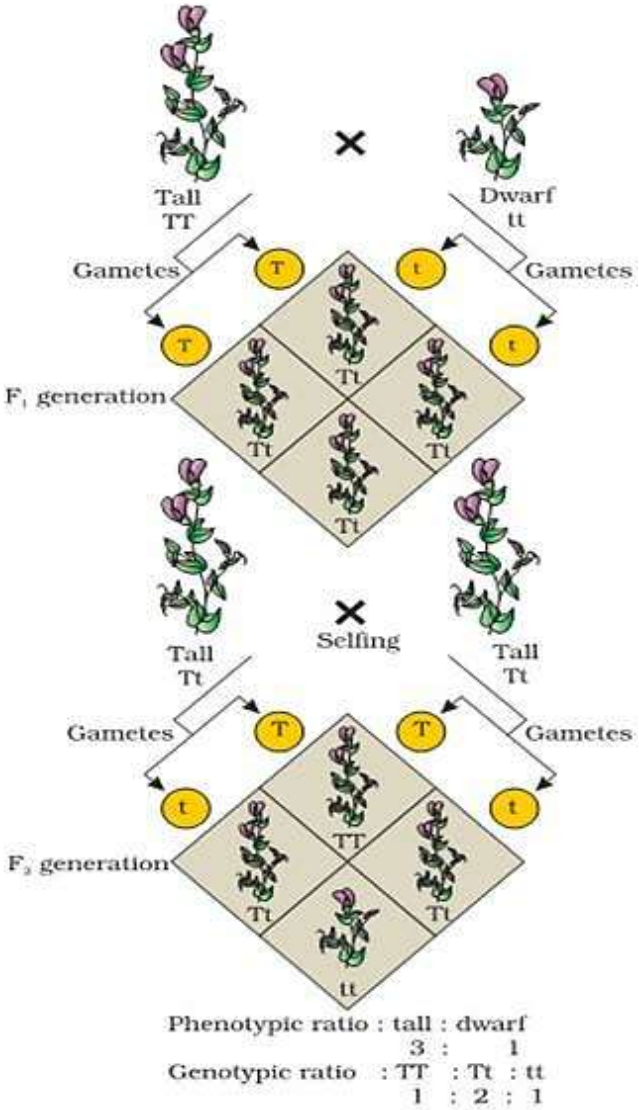
24. A dihybrid heterozygous round, yellow seeded garden pea (Pisum sativum) was crossed with a double recessive plant.

(i) What type of cross is this?

(ii) Work out the genotype and phenotype of the progeny.

(iii) What principle of Mendel is illustrated through the result of this cross?

25. Differentiate between dominance, co-dominance & Incomplete dominance with one example each.



26. A dihybrid heterozygous tall & yellow pea plant was crossed with double recessive plant.

(i) What type of cross is this?

(ii) Work out the genotype & phenotype of progeny

(iii) What principle of Mendel is illustrated through result of this cross?

27. Which one change is the cause of sickle – cell anaemia?

28. What is a test cross?

29. What is mutagen? Give an example?

30. What was the total number of varieties of garden pea which Mendel had taken to start his experiment?