

**SAINIK SCHOOL GOPALGANJ**  
**ASSIGNMENTS**  
**BIOLOGY**

**Chapter 05 : Principles of Inheritance**

**Class: XII**

**General Instructions**

- 
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
- 

1. If a hybrid expresses a character, it is called \_\_\_\_\_
  - a) Epistasis
  - b) Dominant
  - c) Co-dominant
  - d) Recessive
2. A plant having the genotype AABbCC will produce \_\_\_\_\_ kinds of gametes
  - a) 5
  - b) 4
  - c) 3
  - d) 2
3. Colour blindness is an \_\_\_\_\_ linked recessive trait
  - a) Z chromosome
  - b) Y chromosome
  - c) X chromosome
  - d) None of the above
4. In most species, mitochondrial DNA is passed down from
  - a) DNA
  - b) Mother and Father
  - c) Father
  - d) Mother
5. Where are the genes for cytoplasmic male sterility in plants located?
  - a) Chloroplast genome
  - b) Mitochondrial genome
  - c) Cytosome
  - d) None of the above
6. \_\_\_\_\_ is a type of trait whose phenotype is influenced by more than one gene
  - a) Oncogenic Trait
  - b) Monogenic trait
  - c) Polygenic trait
  - d) None of the above
7. An individual's collection of genes is called \_\_\_\_\_
  - a) Genotype
  - b) Phenotype
  - c) Trait

- d) None of the above
8. A man marries a woman and both do not show any apparent traits of inherited disease. Five sons and two daughters are born, and three of their sons suffer from a disease. However, none of the daughters is affected. The following mode of inheritance for the disease is
- Sex-linked recessive
  - Sex-linked dominant
  - Autosomal dominant
  - None of the above
9. A trait that “overpowers” and hide another trait is called
- Overpowering trait
  - Complex trait
  - Recessive trait
  - Dominant Trait
10. Why is haemophilia a disease that is more commonly seen in males?
- Both (2) and (3)
  - The disease is Y- linked
  - The disease is X- linked
  - None of the above
11. Recently a girl baby has been reported to suffer from haemophilia. How is it possible? Explain with a help of a cross.
12. Name the phenomenon that leads to situations like `XO` abnormality in humans. How do humans with `XO` abnormality suffers? Explain.
13. Explain the mechanism of sex determination in honeybees.
14. How is aneuploidy different from polyploidy? Mention their causes
15. Give the Mendelian monohybrid ratio. How is it mathematically condensable to the binomial expression?
16. Inheritance pattern of flower colour in garden pea plant and snapdragon differs. Why is this differences observed? Explain showing the crosses upto  $F_2$  generation.
17. State and explain with the help of a cross, the law of segregation as proposed by Mendel.
18. Differentiate the following
- Polygenic inheritance and Pleiotropy
  - Dominance, Codominance and Incomplete Dominance.
19. (a) Why is human ABO blood group gene considered a good example of multiple alleles?
- (b) Work out a cross upto  $F_2$  generation only, between mothers with blood group A (homozygous) and the father with blood group B (homozygous) . Explain the pattern of inheritance.
20. A man has five daughters and he blames his wife for giving birth to daughters. His wife is pregnant sixth time, as they at least one son.
- What is the probability of this couple getting a son this time sure or again a chance only?
  - Explain to the man that it is not his wife, but he is responsible for the birth of daughters.
  - What value is insisted by convincing him?