WORKSHEET 1

CHAPTER 3 – HEREDITY AND GENETICS

A. Name the following.

1. The unit of heredity.
2. The condition in which both the alleles are identical.
3. The chemical substance which constitutes genes.
4. One genetic disease.
5. A cross between one pair of contrasting characters.

B. Fill in the blanks.

1. _____, the chromosome do not take part in sex determination.
2. _____ is the ratio of dihybrid cross.
3. Colour blindness is caused due to _____ gene.
4. _____ is the scientific name of garden pea, which Mendel used for his experiment.
5. Phenotype is the observable characteristic which is _____ controlled.

C. Match the items in Column A with those in Column B and write down the matching pairs.

Column A	Column B
1. Genetics	a. chromosomes similar in size and shape.
2. Autosomes	b. the alternative form of a gene.
3. Recessive gene	c. study of laws of inheritance of characters.
4. Allele	d. a gene that can express only when in a similar pair.
5. Homologous	e. chromosomes other than the pair of sex chromosomes.

D. Choose the correct option.

1. Mendel did not deal with
   a. segregation. b. linkage.
   c. incomplete dominance. d. both linkage and incomplete dominance.
2. When Mendel crossed a pure white flower of pea with a pure red flower, the first generation hybrids had
   a. only red flowers. b. only white flowers.
   c. pink flowers. d. three red and one white flowers.
3. Sudden changes in the genetic constitution of an individual is known as
   a. linkage. b. crossing over. c. mutation. d. pairing.

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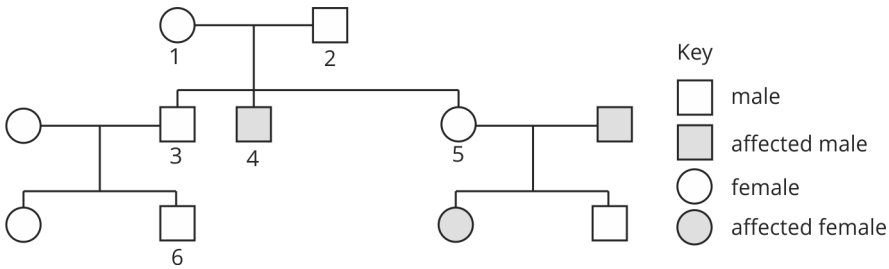
4. One of the examples of sex-linked disease is
   a. diabetes. b. haemophilia. c. leukaemia. d. AIDS.
5. Which of the following is inherited through X chromosomes?
   a. colour blindness. b. anaemia. c. baldness. d. cholera.

E. The figure below shows a family pedigree to show the inheritance of haemophilia. Based on this figure, answer the following questions.



1. Is the allele for haemophilia dominant or recessive?
2. State with reasons the genotype of individuals 1, 2 and 4.
3. What are the possible genotypes of individuals 3 and 5?
4. Define sex-linked inheritance.
5. Give an example of X-linked dominant inheritance.

ANSWERS

WORKSHEET 1

A. Name the following.

1. Genes
2. Homozygous
3. DNA
4. Haemophilia
5. Monohybrid cross

B. Fill in the blanks.

1. Autosomes
2. 9 : 3 : 3 : 1
3. recessive
4. *Pisum sativum*
5. genetically

C. Match the items in Column A with those in Column B and write down the matching pairs.

1. c. 2. e. 3. d. 4. b. 5. a.

D. Choose the correct option.

1. b. 2. a. 3. c. 4. b. 5. a.

E. The figure below shows a family pedigree to show the inheritance of haemophilia. Based on this figure, answer the following questions.

1. Recessive
2. Individuals 1 and 2 are heterozygous since they are normal but produced an affected child.

   Individual 4 is homozygous since the allele is recessive and individual must have two copies of the allele to be affected.
3. Individuals 3 and 5 are normal. But the information present is not sufficient for individual 5, to determine whether she is homozygous or heterozygous.
4. Inheritance of non-sexual characters or traits due to the presence of an allele on sex chromosomes is called sex-linked inheritance.
5. Defective tooth enamel.