WORKSHEET 2

CHAPTER 2 – HUMAN CHROMOSOMES

A. Name the following.

1. Repeating units of DNA.
2. Part of chromosome located distal to the secondary constriction.
3. Structure formed by combining of DNA helix with groups of eight histone molecules.
4. Chromosome with centromere near the middle.
5. Sex chromosome present in human male.

B. Fill in the blanks.

1. The two strands of DNA run in _____ direction.
2. _____ carry genes which control somatic traits.
3. Cytosine base pairs with _____
4. _____ and _____ makes the backbone of DNA.
5. _____ has an appearance of beads on a string.

C. Choose the correct option.

1. The number of autosome in humans.
   a. 44 b. 21 pairs c. 46 d. 45
2. A chromosome with a very short arm and a very long arm is termed as
   a. telocentric. b. acrocentric. c. metacentric. d. submetacentric.
3. Chromatin has
   a. DNA. b. DNA and proteins.
   c. DNA, RNA and proteins. d. none of these.
4. The lowest level of chromosome organization is
   a. solenoid. b. nucleosome. c. 30 nm fibre. d. none of these.
5. The haploid set of chromosomes is called as
   a. proteome. b. genomics. c. genome. d. genes.

D. State whether the following statements are True or False.

1. The two strands of DNA run parallel to each other.
2. Guanine is a pyrimidine base.
3. The pair of allosomes are present in humans.

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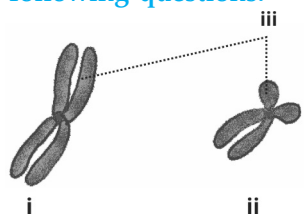
4. Chimpanzees have 48 chromosomes.
5. A gene is the segment of DNA that codes for specific protein.

E. Figures i and ii show types of chromosomes. Based on the figure, answer the following questions.



1. Identify **i** and **ii**.
2. Name the part labelled **iii**.
3. Define **iii**.
4. Write the difference between **i** and **ii**.
5. What do you understand by a telocentric chromosome?

ANSWERS

WORKSHEET 2

A. Name the following.

1. Nucleotides
2. Satellite chromosome
3. Nucleosome
4. Metacentric
5. XY

B. Fill in the blanks.

1. antiparallel
2. Autosomes
3. guanine
4. Sugar (pentose), phosphate
5. Nucleosome

C. Choose the correct option.

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

D. State whether the following statements are True or False.

1. False 2. False 3. True 4. True 5. True

E. Figures i and ii show types of chromosomes. Based on the figure, answer the following questions.

1. Figure **i** is acrocentric chromosome. Figure **ii** is metacentric chromosome.
2. Part **iii** – Centromere.
3. Centromere is the point on the chromosome where spindle fibres are attached during cell division.
4. In acrocentric chromosome, the centromere is towards one end (away from) the centre while in metacentric chromosome, the centromere is located at the centre.
5. If the centromere is located at the end, the chromosome is telocentric.