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2022/23 Academic Year Biology Worksheet One for Grade 10

I. Write "True" if the statement is correct or "False" if it is incorrect.

1. Gene is a unit of hereditary material located on the chromosome.
2. During anaphase of mitosis, homologous chromosomes separate at the centromere and moves to the opposite poles.
3. Mitosis is division of the somatic cells to make two genetically different daughter cells.

II. Match the following terms that are related with heredity under column "A" with their descriptions under Column "B"

"A"	"B"
4. Chiasmata	A. the exchange of DNA between homologous chromosomes
5. Centromere	B. the close association between homologous chromosomes
6. Crossing over	C. the point where sister chromatids attached to each other
7. Synapsis	D. the point where crossing over takes place during prophase I
8. Kinetochore	E. a protein structure that forms b/n homologous chromosome
9. Synaptonemal complex	F. a protein structure that forms b/n sister chromatids
	G. the site on the chromosome occupied by gene

III. Choose the best answer from the given alternatives.

10. If one side of DNA molecule contains the sequence ACGGCTAC, the complementary sequence of the other side would be

A. GTAGCCGT B. TGCCGATG C. UGCCGAUG D. ACGGCTAC

11. Which one of the following is not the common feature of both mitosis and meiosis?

A. Condensation of chromatins C. formation of spindle fibers

B. Exchange of genetic material D. Separation and migration of centrioles

12. If a cell contains 24 chromosomes at the end of meiosis 1, how many chromosomes will the daughter cells contain at the end of meiosis 2?

A.24 B.12 C.48 D.6

13. During which stage of the cell cycle, synthesis of cytoplasmic organelles and accumulation of nutrients are takes place?

A. M phase B. S phase C. G_1 phase D. G_2 phase

14. If a sperm cell contains 30 chromosomes, it comes from the sperm cell that has _____ chromosomes.

A.60 B.30 C.15 D.15

15. In which stages of meiosis Nuclear membrane re-formation and Crossing over between homologous chromosomes takes place respectively?

A. Prophase1 &, metaphase1 C. Telophase 2& prophase 1

B. Telophase 2& prophase 2 D. anaphase2 &metaphase2

IV. Fill in the blank space with the appropriate answer.

16._____is the site on the chromosome which is occupied by a gene.

17._____ is the types of cell division in which sex cells divide to form two different daughter cells.

V. Give detailed explanation for the following questions.

18. What does starter culture mean?

19. Describe the difference between mitosis and meiosis.

20. What are the main uses of mitosis for unicellular and multicellular organisms?