

**MCQ TEST SERIES****S12-BZ-C4-PRINCIPLES OF INHERITANCE AND VARIATION****4.4 SEX DETERMINATION**

1. In humans, the sex of the offspring is determined by:
  - A. The X chromosome from the mother
  - B. The X chromosome from the father
  - C. The Y chromosome from the father
  - D. Autosomes from both parents
2. Males are termed heterogametic because:
  - A. They produce only one type of gamete
  - B. They lack sex chromosomes
  - C. They produce two types of gametes (X and Y)
  - D. They have homologous sex chromosomes
3. What is the chromosomal composition of a human female?
  - A. 44AA + XY
  - B. 44AA + XX
  - C. 22AA + XX
  - D. 22AA + XO
4. Which organism exhibits XO type of sex determination?
  - A. Human
  - B. Drosophila
  - C. Grasshopper
  - D. Bird
5. In ZW-ZZ system, the heterogametic sex is:
  - A. Male
  - B. Female
  - C. Both
  - D. Neither
6. In the haplodiploidy system, males develop from:
  - A. Fertilized eggs
  - B. Unfertilized haploid eggs
  - C. Diploid eggs
  - D. Zygotes with XX chromosomes
7. The SRY gene on the Y chromosome is responsible for:
  - A. Colour blindness
  - B. Testes development
  - C. Brain development
  - D. Barr body formation
8. Barr body is found in the somatic cells of:
  - A. Males only
  - B. Females only
  - C. Both males and females
  - D. Neither males nor females
9. The number of Barr bodies in a female with karyotype XXX is:
  - A. 0
  - B. 1
  - C. 2
  - D. 3
10. Which of the following is a euchromatic region of the Y chromosome?
  - A. Non-combining region
  - B. Heterochromatic region
  - C. Functional gene-rich region
  - D. Sex chromatin
11. What is the total number of chromosomes in a human sperm?
  - A. 46
  - B. 23
  - C. 22
  - D. 44
12. Which region on the Y chromosome pairs with the X chromosome during meiosis?
  - A. SRY region
  - B. Non-recombining region
  - C. Euchromatin
  - D. Pseudoautosomal region (PAR)
13. In honeybees, fertilized eggs become:
  - A. Drones
  - B. Workers or queen
  - C. Diploid males
  - D. Haploid females
14. According to Lyon's hypothesis, dosage compensation occurs through:
  - A. X chromosome replication
  - B. Y chromosome inactivation
  - C. Random inactivation of one X chromosome in females
  - D. Deletion of X chromosome
15. Male offspring is produced when a sperm carrying the \_\_\_ chromosome fertilizes the ovum.
  - A. X
  - B. Y
  - C. XX
  - D. XO

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**ANSWER KEY**

1. C
2. C
3. B
4. C
5. B
6. B
7. B
8. B
9. C
10. C
11. B
12. D
13. B
14. C
15. B

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