

**Sex Determination and Sex-Linked Characteristics****1. Multiple Choice Question (MCQ)**

Which of the following statements about sex determination is **correct**?

- A) In birds, males have the heterogametic sex chromosome composition.
- B) In humans, the presence of the SRY gene determines maleness.
- C) Drosophila sex determination depends solely on the presence of the Y chromosome.
- D) In reptiles, sex determination is exclusively chromosomal.

**Answer:** B) In humans, the presence of the SRY gene determines maleness.

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**2. Multiple Select Question (MSQ)**

Which of the following conditions are examples of **X-linked recessive disorders**?

- A) Hemophilia A
- B) Duchenne muscular dystrophy
- C) Turner syndrome
- D) Color blindness

**Answer:** A) Hemophilia A, B) Duchenne muscular dystrophy, D) Color blindness

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**3. Numerical Answer Type (NAT)**

In *Drosophila melanogaster*, the sex of an individual is determined by the X:A ratio (X chromosomes to autosome sets). If a fly has 2 X chromosomes and 3 sets of autosomes, what is its X:A ratio? (Provide the numerical answer rounded to two decimal places.)

**Answer:** 0.67

**Explanation:** X:A ratio = **Number of X chromosomes / Number of autosomal sets** =  $2/3 = 0.67$

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**4. Multiple Choice Question (MCQ)**

A male human inherits an X-linked gene from:

- A) His father
- B) His mother
- C) Both parents
- D) None of the above

**Answer:** B) His mother

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**5. True or False**

In mammals, the Barr body represents an inactivated **X chromosome** in somatic cells of females.

**Answer:** True

