CALIFORNIA BIOLOGY · UNIT 3 · 25 QUESTIONS

Heredity: Inheritance and Variation — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **An allele is best defined as one version of a**

- A Cell
- B Protein
- C Gene
- D Chromosome

Understand It with Pulse | Flag a mistake

2 **An organism with two different alleles for a gene, such as Tt, is described as**

- A Homozygous dominant
- B Heterozygous
- C Homozygous recessive
- D Haploid

Understand It with Pulse | Flag a mistake

3 **The observable trait of an organism is called its**

- A Allele
- B Phenotype
- C Genotype
- D Karyotype

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4 **In pea plants tall stems are dominant to short stems Two heterozygous tall plants are crossed The expected fraction of offspring that are short is**

ANSWER

Understand It with Pulse | Flag a mistake

5 **Two heterozygous tall pea plants are crossed, where T is tall and t is short The expected ratio of tall offspring to short offspring is**

A 2 to 1

B 1 to 3

C 3 to 1

D 1 to 1

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6 **A cross between two heterozygous parents for one gene gives genotypes in the expected ratio of**

- A 9 to 3 to 3 to 1
- B 1 to 2 to 1
- C 1 to 1
- D 3 to 1

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7 **A homozygous recessive plant is crossed with a heterozygous plant for the same gene The expected fraction of offspring showing the recessive trait is**

ANSWER _____

Understand It with Pulse | Flag a mistake

8 **A test cross is used to find the genotype of an organism showing a dominant trait by crossing it with an organism that is**

- A Heterozygous
- B Homozygous recessive
- C Homozygous dominant
- D Haploid

Understand It with Pulse | Flag a mistake

9 **In incomplete dominance a cross between red flowered and white flowered snapdragons produces pink flowers because**

- A The flowers mutate
- B The alleles are on different chromosomes
- C Both alleles are recessive
- D Neither allele is fully dominant

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10 **In codominance both alleles are expressed in the heterozygote, as seen when red and white flowered parents produce offspring with**

- A Red and white spotted flowers
- B Red flowers only
- C Pink flowers only
- D White flowers only

Understand It with Pulse | Flag a mistake

11 **Human blood type is controlled by multiple alleles, and a person with genotype IAi has blood type**

- A AB
- B A
- C B
- D O

Understand It with Pulse | Flag a mistake

12 **A person with blood type O has genotype ii and can receive blood from a donor with blood type**

- A O only
- B AB only
- C A only
- D B only

Understand It with Pulse | Flag a mistake

13 **A trait carried on the X chromosome appears more often in males mainly because males have only**

- A No sex chromosomes
- B One Y chromosome
- C One X chromosome
- D Two X chromosomes

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14

A pedigree chart uses squares for males, circles for females, and shading to show individuals who

Question 14

A pedigree chart uses squares for males, circles for females, and shading to show individuals who

A) Express the trait studied

B) Are married

C) Have no children

D) Are twins

A Express the trait studied

B Are married

C Have no children

D Are twins

Understand It with Pulse

Flag a mistake

15 **Meiosis produces sex cells with half the chromosome number because the cell divides**

A Once with no DNA copying

B Once with DNA copied twice

C Twice with DNA copied once

D Twice with DNA copied twice

Understand It with Pulse | Flag a mistake

16 **A human body cell has 46 chromosomes After meiosis a human sex cell normally has**

ANSWER _____

Understand It with Pulse | Flag a mistake

17 **Crossing over during meiosis exchanges segments between homologous chromosomes and increases**

A The chromosome number

B The rate of mitosis

C The size of the nucleus

D Genetic variation in offspring

Understand It with Pulse | Flag a mistake

18 **Independent assortment means that alleles for different genes on different chromosomes are sorted into gametes**

A Independently of each other

B Only in females

C Only in males

D Always together

Understand It with Pulse | Flag a mistake

19 **A dihybrid cross between two heterozygous parents for two genes gives an expected phenotypic ratio of**

A 3 to 1

B 1 to 1

C 1 to 2 to 1

D 9 to 3 to 3 to 1

Understand It with Pulse | Flag a mistake

20 **A human cell that fails to separate one pair of chromosomes during meiosis can produce a gamete with an extra chromosome, a condition called**

A Crossing over

B Fertilization

C Nondisjunction

D Replication

Understand It with Pulse | Flag a mistake

21 **Down syndrome in humans is most often caused by an extra copy of chromosome**

A 21

B 18

C 13

D 23

Understand It with Pulse | Flag a mistake

22 **A mutation that changes one DNA base to a different base is called a**

A Duplication

B Deletion

C Translocation

D Substitution

Understand It with Pulse | Flag a mistake

23 **An insertion or deletion of DNA bases can shift the reading frame of a gene and change many amino acids after the mutation, which is called a**

A Silent mutation

B Chromosome mutation

C Point mutation only

D Frameshift mutation

Understand It with Pulse | Flag a mistake

24 **A mutation occurs in a sex cell rather than a body cell. What can happen to that mutation?**

A Is always repaired

B Changes the whole genome

C Can be passed to offspring

D Always causes disease

Understand It with Pulse | Flag a mistake

25

In a cross Aa x Aa, where A is dominant, the expected fraction of offspring with genotype AA is

ANSWER

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	C	**10.**	A	**19.**	D
2.	B	**11.**	B	**20.**	C
3.	B	**12.**	A	**21.**	A
4.	0.25	**13.**	C	**22.**	D
5.	C	**14.**	A	**23.**	D
6.	B	**15.**	C	**24.**	C
7.	0.5	**16.**	23	**25.**	0.25
8.	B	**17.**	D		
9.	D	**18.**	A		

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