BIOLOGY · ARKANSAS

Biology
Practice Test

Unit 2: Genetics and Heredity

25 Questions

Original practice test based on the Arkansas curriculum. Work through each question, then check your answers at the end.

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.

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Question 1

A gene is a section of DNA that codes for

A) A functional RNA or polypeptide

B) An entire chromosome

C) A whole organism

D) A lipid membrane

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Question 2

An allele is best described as

A) One version of a gene

B) A whole chromosome pair

C) A type of ribosome

D) A cell membrane protein

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Question 3

In a diploid organism, homologous chromosomes carry genes for the same traits at the same

A) Ribosomes

B) Membranes

C) Loci

D) Centrioles

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Question 4

A genotype with two identical alleles, such as AA, is

A) Heterozygous

B) Hemizygous

C) Polyploid only

D) Homozygous

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Question 5

A genotype with two different alleles, such as Aa, is

A) Heterozygous

B) Homozygous dominant

C) Homozygous recessive

D) Haploid

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Question 6

A dominant allele is expressed in the phenotype when it is present in

A) Two copies only

B) One or two copies

C) No copies

D) A gamete only

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Question 7

A recessive phenotype appears only when an organism has

A) One dominant allele

B) No allele at all

C) Two copies of the recessive allele

D) A mutated ribosome

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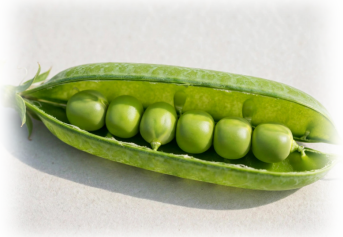

Question 8

A pea plant with genotype Tt is crossed with tt, and half the offspring are expected to show the dominant trait because the cross is a

A) Self cross of two dominants

B) Dihybrid cross only

C) Back cross with no recessive

D) Test cross with a recessive parent

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Question 9

Two heterozygous parents Aa crossed together are expected to produce offspring in a genotype ratio of

A) 1 AA to 2 Aa to 1 aa

B) 3 AA to 1 aa

C) 1 Aa to 3 aa

D) All Aa

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Question 10

In a monohybrid cross of two heterozygotes, the expected phenotype ratio for a simple dominant trait is

A) 1 dominant to 3 recessive

B) 3 dominant to 1 recessive

C) 2 dominant to 2 recessive

D) All dominant

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Question 11

A dihybrid cross of two heterozygotes AaBb by AaBb is expected to give a phenotype ratio of

A) 3 to 1 only

B) 1 to 1 to 1 to 1

C) 9 to 3 to 3 to 1

D) 4 to 4 to 4 to 4

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Question 12

Independent assortment means alleles of different genes

A) Always stay together

B) Never enter gametes

C) Only separate in mitosis

D) Separate independently into gametes

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Question 13

During meiosis, homologous chromosomes separate in

A) Anaphase I

B) Prophase of mitosis

C) Anaphase of mitosis

D) Cytokinesis of mitosis

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Question 14

Sister chromatids separate during

A) Anaphase I of meiosis

B) Anaphase II of meiosis

C) Prophase I only

D) Interphase only

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Question 15

Crossing over during prophase I creates new combinations of alleles by exchanging segments between

A) Sister chromatids of one chromosome

B) Ribosomes

C) Homologous chromosomes

D) Mitochondria

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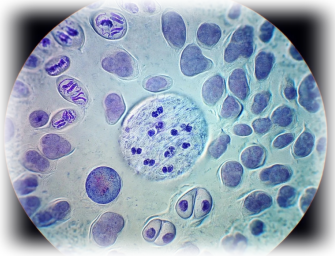

Question 16

Meiosis produces four cells that are genetically

A) Identical to each other and diploid

B) Identical and haploid

C) Different and diploid

D) Different from each other and haploid

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Question 17

Mitosis differs from meiosis because mitosis produces

A) Two genetically identical diploid cells

B) Four genetically different haploid cells

C) Four identical diploid cells

D) Two different haploid cells

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Question 18

A human body cell has 46 chromosomes, so a human gamete normally has

A) 46 chromosomes

B) 23 chromosomes

C) 92 chromosomes

D) 12 chromosomes

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Question 19

Nondisjunction is the failure of chromosomes to separate properly, which can produce a gamete with

A) No DNA at all

B) Two nuclei only

C) An extra chromosome

D) No cytoplasm

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Question 20

Down syndrome most often results from an extra copy of

A) Chromosome 1

B) The X chromosome only

C) A ribosome

D) Chromosome 21

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Question 21

Sex linked traits carried on the X chromosome appear more often in males because males have

A) Only one X chromosome

B) Two X chromosomes

C) No Y chromosome

D) Two copies of every X gene

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Question 22

A carrier female for a recessive X linked trait has one normal allele and one affected allele, so she usually

A) Shows the affected phenotype

B) Shows the normal phenotype

C) Has no offspring

D) Lacks the gene entirely

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Question 23

Incomplete dominance is shown when a red flower crossed with a white flower gives pink offspring, because the heterozygote shows

A) The dominant phenotype only

B) The recessive phenotype only

C) An intermediate phenotype

D) No phenotype

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Question 24

Codominance is shown when both alleles are fully expressed, as in AB blood type where both A and B antigens appear on red cells, because

A) One allele is fully dominant

B) The trait is sex linked

C) The gene is on a plasmid

D) Neither allele is recessive to the other

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Question 25

A person with blood type O has genotype ii and can donate red cells to many recipients, but can receive red cells only from type

A) O donors

B) AB donors

C) A donors only

D) B donors only

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ANSWER KEY

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

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