

Patterns of Inheritance: Applied Genetics



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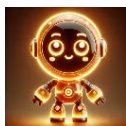
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المزيد من مادة
علوم:

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التواصل الاجتماعي بحسب الصف الحادي عشر العام



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الحادي عشر العام والمادة علوم في الفصل الثالث

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BIOLOGY

Chapter 1

PATTERNS OF INHERITANCE

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تنبيه : هذا المحتوى نتاج مجهود شخصي وفكري، ويمنع منعًا
بأتم تعديل أو نشر هذا المحتوى إلا بإذن من صاحب العمل

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APPLIED GENETICS

Q1) . Selective breeding is practiced in fruit farming because people want _____.

- A. fruits that take longer to grow
- B. fruits that resist diseases ✓
- C. fruits with less variety
- D. fruits that are less firm

Q2) . Which of the following is a disadvantage of selective breeding?

- A. reduced genetic variation ✓
- B. benefits farmers and customers
- C. produces offspring that have better qualities
- D. produces offspring with desired traits

Q3) . Fahad wants to breed a faster camel with longer eyelashes to enter races and beauty contests. In the table below are the camels he has available for breeding (1 to 5) and their traits.

Which two options would be the BEST choices for breeding to get the desired traits?

- A. 1 and 3
- B. 4 and 5
- C. 2 and 3 ✓
- D. 1 and 4

Camel	Speed 15-17 m/s	Speed 17-19 m/s	Speed 18-20 m/s	Eyelashes short	Eyelashes long
1	X				X
2			X		X
3		X			X
4		X		X	
5	X				X

Q4) . The different dog breeds we find today were produced by the process of _____.

- A. evolution
- B. natural selection
- C. recombinant DNA
- D. selective breeding ✓

Q5) . Choose the statements that do NOT apply to selective breeding:

- A. Parents pass on desired traits to offspring through their genes.
- B. Selective breeding takes place without the influence of human-controlled processes. ✓
- C. Only parents with certain traits are allowed to reproduce.
- D. selective breeding involves desired traits of crops that benefit the economy.

APPLIED GENETICS

Q6) . Select the correct answers from the drop-down menus:

During selective breeding of racehorses, parent horses with which trait are selected to breed together and produce offspring with more desirable characteristic ?

- A. fast speed ✓
- B. large size
- C. colorful patterns
- D. strong legs

Q7) . Scientists can breed wheat that produces more seeds per plant, which then increases the yield of the wheat crop.

Which of the following is an advantage of this practice?

- A. new diseases may develop
- B. there is more food for more people ✓
- C. offspring may have only undesirable traits
- D. a decrease in genetic variety



Q8) . Salma wants a cat with the least amount of shedding and that is calm. Which cats (1 to 6) would be the best parents for Raghad's cat?

- A. 2
- B. 3
- C. 4
- D. 5
- E. 6. ✓
- F. 1 ✓

Cat	Shed very little	Average shedding	Sheds a lot	Calm	Hyperactive
1 (male)		X		X	
2 (male)			X	X	
3 (male)	X				X
4 (female)		X			X
5 (female)			X		X
6 (female)	X			X	

Q9) . Crop varieties that are bred by selective breeding will show economically important characteristics such as _____.

- A. increased yield ✓
- B. decreased yield
- C. short shelf life
- D. reduced food quality

Q10) . Select the statement that correctly describes selective breeding:

- A. animals and plants naturally select the best mate to breed with
- B. plants and animals are genetically modified using genetic engineering techniques
- C. humans select two animals or plants with desired traits and breed them ✓
- D. humans select a time when animals and plants may breed

APPLIED GENETICS

Q11) . Another term for selective breeding is _____ selection.

A. natural

B. artificial ✓

C. wild

D. reproductive

Q12) . A citrus fruit farmer discovers that some of her trees have become susceptible to insects invasion. She wants to use selective breeding processes to improve her trees.

Which one of the following selective breeding processes will be involved?

A. breed randomly chosen individuals for multiple generations

B. cross-pollinate the citrus trees with other trees that exhibit insect resistance ✓

C. use insecticides to prevent insects invasion

D. breeding closely related individuals will automatically remove undesired traits

Q13) . Below are the steps for selectively breeding wheat crops. Write the letters of the steps in the correct order:

This is repeated until a population of large-grained wheat plants is produced.	Farmers select the wheat plants with the largest grains.	From the offspring produced, those with the largest grains are selected and bred together.	The selected plants are bred and produce multiple offspring.
W	X	Y	Z

A. X-Z-Y-W ✓

B. Z-W-Y-X

C. X-Y-Z-W

D. W-Z-Y-X

Q14) . The two main types of selective breeding are _____.

A. hybridization and inbreeding ✓

B. mutation and adaptation

C. natural selection and crossbreeding

D. genetic engineering and cloning

Q15) . Which of the following is an advantage of hybridization ?

- A. offspring have a combination of desired traits from both parents ✓
- B. offspring retain the desired traits
- C. time-consuming and expensive
- D. harmful recessive traits can be passed onto the offspring

Q16) . Which of the following is an advantage of Inbreeding ?

- A. offspring retain the desired traits ✓
- B. harmful recessive traits can be passed onto the offspring
- C. time-consuming and expensive
- D. offspring have a combination of desired traits from both parents

Q17) . Which of the following is an disadvantage of hybridization ?

- A. offspring have a combination of desired traits from both parents
- B. offspring retain the desired traits
- C. time-consuming and expensive ✓
- D. harmful recessive traits can be passed onto the offspring

Q18) . Which of the following is an disadvantage of Inbreeding?

- A. offspring have a combination of desired traits from both parents
- B. offspring retain the desired traits
- C. time-consuming and expensive
- D. harmful recessive traits can be passed onto the offspring ✓

Q19) . Which one of the following statements describes hybridization?

- A. breeding closely related organisms to produce a hybrid with desirable traits
- B. breeding organisms of the same species to produce a hybrid with desirable traits from two different individuals
- C. breeding organisms of different varieties or species to produce a hybrid with desirable traits from two different individuals ✓
- D. breeding organisms of different varieties or species to produce a hybrid with undesirable traits from two different individuals

Q20) . Which of the following is NOT correct about hybridization and inbreeding?

- A. Hybridization results in hybrids with traits from both parents, whereas inbreeding produces offspring very similar to parents.
- B. Hybridization is crossing genetically different individuals, whereas inbreeding is crossing closely related parents.
- C. Hybridization is time-consuming and expensive, whereas inbreeding increases the chances of homozygous recessive offspring.
- D. Unlike inbreeding, hybridization is more likely to cause genetic abnormalities. ✓

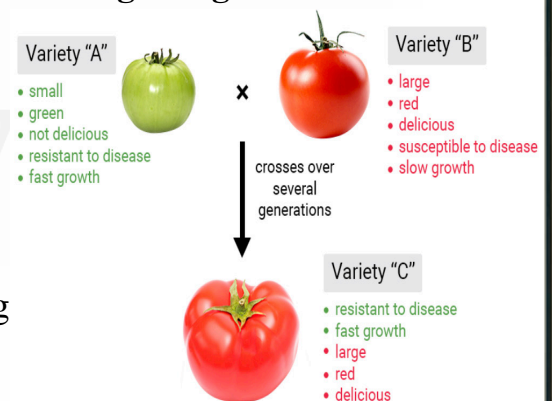
Q21) . Which statement is NOT correct about hybridization?

- A. takes a long amount of time and is expensive
- B. hybrid organisms are created
- C. offspring have a certain combination of traits from both parents
- D. involves breeding closely related organisms ✓

Q22) . Which of the following is disadvantages of hybridization?

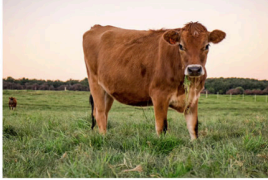
- A. it increases the chances of homozygosity
- B. it produces disease-resistant organisms
- C. the process is time-consuming ✓
- D. it produces organisms that grow faster

Q23) . Which statement is CORRECT for the diagram given?



- A. an advantage of this is that it is time-consuming
- B. a disadvantage is that it is resistant to diseases
- C. this is an example of inbreeding
- D. this is an example of hybridization ✓

APPLIED GENETICS

	
Type A	Type B
body mass 600kg	body mass 400kg
3.4 % protein in milk	3.8 % protein in milk
milk available for 325 days after giving birth	milk available for 250 days after giving birth
no milk produced for 55 days before having a calf	no milk produced for 45 days before having a calf
produces > 30 liters of milk/day	produces < 30 liters of milk/day

Q24) . If the farmer needs to produce a larger volume of milk continuously , _____ cows are a better option.

- A. Type A ✓
 B. Type B
 C. none
 D. A and B

Q25) . If he is looking to sell milk with high protein content and a high meat yield, he should _____ cows.

- A. hybridize Type A and Type B ✓
 B. inbreed Type A only
 C. inbreed Type B only
 D. crossbreed with unrelated breed

Q26) . Different types or breeds of dogs were developed by breeders through years of _____.

- A. random chance
 B. genetic mutation
 C. natural selection
 D. selective breeding ✓



Q27) . The two Shetland ponies have the same mother and father. If they were used for breeding, it would be an example of _____.

- A. hybridization
 B. cross-breeding
 C. natural selection
 D. inbreeding ✓



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Q28) . In a laboratory, mice have been bred over 20 generations with direct siblings to make their DNA as similar as possible. This can be seen in the white coats that all the mice have. This breeding is an example of

- A. hybridization
- B. cross-breeding
- C. natural selection
- D. inbreeding ✓



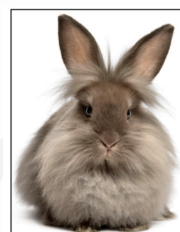
Q29) . In breeding , Which of the following is the first step ?

- A. repeat this process continuously
- B. choose parents that show these traits
- C. choose the best offspring and have them produce the next generation
- D. decide which traits you want future offspring to have ✓

Q30) . Select the best choice. Inbreeding involves _____.

- A. breeding organisms with different varieties or species
- B. breeding two unrelated organisms
- C. breeding two closely related organisms ✓
- D. producing hybrids

Q31) . The Lionhead rabbits were to reproduce with a population of Dutch rabbits over many generations. Which of the following correctly explains the type of selective breeding in this given example?



Lionhead rabbit



Dutch rabbits

- A. Hybridization – Reason: The two rabbits are closely related
- B. Hybridization – Reason: The two rabbits are of different varieties ✓
- C. Inbreeding – Reason: The two rabbits are closely related
- D. Inbreeding – Reason: The two rabbits are of different varieties

APPLIED GENETICS

Q32) . Which pair represents a test cross?

- A. unknown genotype $\times$ heterozygous
- B. control cross $\times$ Punnett square
- C. unknown genotype $\times$ homozygous dominant
- D. unknown genotype $\times$ homozygous recessive ✓

Q33) . In garden pea plants, the green pea pod (G) is a dominant genetic trait over the yellow pea pod (g). A test cross was performed to determine the genotype of a parent with a dominant phenotype. The test cross resulted in only phenotypically dominant offspring. Select the Punnett square that correctly represents the given test cross.

	G	g
g	Gg	Gg
g	Gg	Gg

	G	G
g	GG	GG
g	GG	GG

	G	G
g	Gg	Gg
g	Gg	Gg

 ✓

	G	g
g	Gg	gg
g	Gg	gg

Q34) . The observable outcome of a particular allele combination expressed by an individual is called the _____.

- A) phenotype ✓
- B) dominant alleles
- C) genotype
- D) offspring

APPLIED GENETICS

Q35) . A botanist has two pea plants with short stem lengths. The trait for short stem length is recessive represented by the letter "s." The botanist crosses his two plants together.
Can the botanist produce tall offspring from his two plants?



- A) there is no way to produce tall offspring since both parents are homozygous recessive ✓
- B) all the produced offspring will have tall pea plants
- C) there will be 3 tall plants for every 1 short plant
- D) for every 4 offspring produced 1 will have a tall phenotype

Q36) . What is the reason for doing a test cross?

- A) to determine which allele is dominant and which is recessive
- B) to identify the genotype of an individual with a dominant phenotype ✓
- C) to determine whether the individual is fertile or not
- D) to identify the genotype of an individual with a recessive phenotype

Q37) . What is the genotypic ratio of the offspring in the cross shown in the Punnett square?

	P	P
p	Pp	Pp
p	Pp	Pp

- A) 1:2:1
- B) 3:1
- C) 100% heterozygous ✓
- D) 100% homozygous recessive

Q38) . Green-colored pea pods are genetically dominant to yellow-colored pea pods. Offspring that have _____ allele(s) of the genetically dominant trait will all have green-colored pea pods.

- A) at least one ✓
- B) two
- C) no
- D) some

Q39) . What are the possible genotypes for the dominant trait.:

- A) GG
- B) gg
- C) Gg
- D) Gg and GG ✓

Q40) . Huntington's disease is a genetic disorder that is passed on by dominant alleles. The genotype combinations possible for an individual with Huntington's disease is ____.

- A) homozygous recessive only
- B) heterozygous only
- C) homozygous dominant or heterozygous ✓
- D) homozygous dominant only

Q41) . A test cross is used to determine if the individual showing a dominant phenotype is ____ or homozygous dominant.

- A) heterozygous ✓
- B) homozygous recessive
- C) homozygous
- D) dominant

Q42) . The cross shown in the Punnett square could be used to determine the genotype of the parent of the dominant phenotype. This type of cross is called a(n) ____.

- A) inbreeding cross
- B) hybrid cross
- C) offspring cross
- D) test cross ✓

	Y	?
y	Yy	yy
y	Yy	yy

Q43) . The red color is a dominant trait in flowers. What is the correct way to represent a homozygous dominant genotype for red flowers?

- A) Rr
- B) rr
- C) rR
- D) RR ✓

Q44) . A species of beetle is found in two colors: blue and black. The blue color is genetically dominant to the black color. A scientist would like to know if a blue beetle will create only blue beetles if mated.

Select the choice that correctly shows the purpose of the study and the method that should be used to achieve the purpose.

A) purpose: know if the blue beetle is heterozygous; method: know from the physical appearance of the blue beetle

B) purpose: know if the blue beetle is homozygous dominant; method: mate the blue beetle with another homozygous dominant blue beetle

C) purpose: know if the blue beetle is homozygous recessive; method: mate the blue beetle with another blue beetle

D) purpose: know if the blue beetle is homozygous dominant; method: mate the blue beetle with a black beetle ✓

انتهت الأسئلة

قيم/ي نفسك الان ، كم اجابة صحيحة اجبتها دون مساعدة ؟

