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India's Number 1 Education App

BIOLOGY

BOOKS - ARIHANT NEET BIOLOGY (HINGLISH)

MENDELIAN BASIS OF INHERITANCE

Check Point 6 1

1. Genetics is

A. Genes+ alleles

B. Heredity+ variation

C. DNA+RNA

D. Dominant+ recessive

Answer: B

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2. The term 'genetics' was proposed by:

A. Bateson

B. Morgan

C. Mendel

D. Johanson

Answer: A

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3. Which of the following does not come under transimission genetics?

A. Molecular genetics

B. Mendelian genetics

C. Morganian genetics

D. non- Mendelian genetics

Answer: A

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4. The minature form fo individuals discussed in preformation theory are

A. Sperms

B. Pangenes

C. Homunculus

D. Gemmules

Answer: C

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5. The work of Mendel was published in 1866 before the naural Science society of Brunn in a paper named

A. Hybridisation on pea plant

B. Inheritance pattern in pea plant

C. Experiments on plant hybridisation

D. Mendelian experiments on pea plant

Answer: C

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6. The scientist not associated with the rediscovery of Mendel's work is

A. Hugo de Vries

B. Karl correns

C. Erich von Tschermak

D. William Bateson

Answer: D

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7. Which one is not the reason for the success of Mendel?

A. Made statistical analysis of the ofsprings

B. Kept accurate records

C. Select pea paint

D. Only did self- pollination in plants

Answer: D

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8. The unit of inheritance is

A. Allele

B. gene

C. factor

D. allelomorph

Answer: B

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9. The term allele was given by

A. Bateson

B. Morgan

C. Mendel

D. correns

Answer: A

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10. Which of the following term represent a pair of contrasting character?

A. Homozygous

B. Phenotype

C. Heterozygous

D. Genotype

Answer: A

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11. Phenotype is

A. The genetic make up of an individual

B. The same for parent and offspring

C. The account of physiological activites

D. The appearance of an individual

Answer: D

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12. When a gene pair contains two different genes controlling different traits of a character, it is

A. Homozygous

B. Heterozygous

C. Monozygous

D. None of the above

Answer: B

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13. Which of the following is not a back cross?

A. $Ww \times WW$

B. $Ww \times ww$

C. $ww \times ww$

D. Both (a) and (c)

Answer: C

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14. To determine the heterozygosity of a cross, one has to perform

A. Back cross

B. Test cross

C. reciprocal cross

D. All of these

Answer: B

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15. To F_2- generation of a test cross the parental types are..... homoxygous or heteroxygous.

A. 0.75

B. 0.25

C. 1

D. 0.5

Answer: D

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Check Point 6 2

1. How many true breeding pea lines were selected by Mendel in his experiments?

A. 7

B. 4

C. 14

D. 10

Answer: C

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2. A true breeding line is one that

A. Having undergone continuous sell pollination

B. Shows the stable trait inheritance

C. Shows expression for several generation

D. all of the above

Answer: D

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3. One of the following did not consitute the seven contrasting pairs of characters noticed by Mendel

A. Pod shape

B. Leaf shape

C. Plant height

D. Pod colour

Answer: B

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4. What would be the genotype of a plant that was homoxygous for the dorminant trait of axial flowers?

A. AA

B. Aa

C. aa

D. Cannot be determined

Answer: A

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5. How many different genotypes are possible form a cross between the parents RR and rr?

A. Four

B. One

C. Three

D. Two

Answer: C

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6. What would be the phenotype of a pea plant of genotype it. Where T is the allele for tailness and t is the allele for shortness?

A. Short

B. Tall

C. Medium

D. Unknown

Answer: B

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7. The F_2 ratio resulting from a monohybrid cross will be

A. $15:1$

B. $9:7$

C. $3:1$

D. $1:2$

Answer: C

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8. Two crosses between the same pair of genotypes or phenotypes in which the sources of the gametes are reversed in one cross, is known as

A. dihybrid cross

B. Reverse cross

C. Test cross

D. reciprocal cross

Answer: D

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9. Law of Mendel which is not completely applicable is:

A. Codominance

B. law of segregation

C. Law of independent assortment

D. Law of dominance

Answer: D

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10. Mendel's law of segeration is based upon the F_2 ratio of

A. $1:2$

B. $3:1$

C. $9:3:3:1$

D. 1:1`

Answer: B

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11. "Gametes are never hybrid ". It is a statement of law of

A. dominance

B. segregation

C. independent assortment

D. random fertilisation

Answer: B

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12. A monohybrid cross in which both the alleles of a pair express themselves fully in F_1 - generation . This phenomenon is known as

A. Incomplete dominance

B. codominance

C. semidominance

D. epistasis

Answer: B

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13. Dihybrid test cross ratio is

A. $3:3$

B. $1:2:1:2$

C. $1:1:1:1$

D. $2:1:2$

Answer: C

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14. In animals law of segregation was experimentally seen by Morgan in

A. Drosophila

B. Cattle

C. Dogs

D. mice

Answer: A

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15. Which of the following genotype will produce four different types of gametes?

A. AAbbccddEE

B. aaBBCCdd

C. AaBbcC

D. AaBb

Answer: D

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Check Point 6 3

1. Which of the following is not a non-allelic gene interaction?

A. Epistasis

B. Duplicate gene

C. Incomplete dominance

D. Complementary gene

Answer: C

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2. Pleiotrophy occurs when a gene has

A. A complementary gene elsewhere

B. A small effect on one trait

C. Reversible effects on the phenotype, depending on age

D. many effects on the phenotype

Answer: D

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3. Two nonallelic genes produces the new phenotype when present together but fail to do so independently then it is called :-

A. Epistasis

B. Polygene

C. Non =-complementary gene

D. complementary gene

Answer: D

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4. Complementary genes were demonstratedby Bateson in

A. Capsella

B. Lathyrus odoratus

C. Summer squash

D. Mirabilis jalapa

Answer: B

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5. Which of the following genotypes of sweet pea plant is related with the production of purple coloured flowers

A. CcPp

B. CCpp

C. ccPP

D. Ccpp

Answer: A

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6. Which of the following gene controls the formationof enxyme which catalyses transformation of chromogen into anthocyanin?

A. Gene P

B. Gane I

C. Gane C

D. Gane B

Answer: A

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7. A gene which hides the action of another gene is termed as

A. codominant gene

B. Epistatic gene

C. hypostatic gene

D. lethal gene

Answer: B

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8. Mice coat colour is an example of

A. Complementary genes

B. Duplicate genes

C. Recessive epistasis

D. Polygenes

Answer: C

View Text Solution

9. In which situation the coat colour of mice will be black?

A. ccaa

B. CcAa

C. Ccaa

D. CcAA

Answer: C

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10. If dominant gene pair mask the expression of other gene pair, it will be

A. Recessive epistasis

B. Dominant epistasis

C. Duplicate genes interaction

D. inhibitory genes interaction

Answer: C

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11. The duplicate genes are also called as

A. Multiple allele

B. inhibitary factors

C. pseudoalleles

D. supplementary genes

Answer: C

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12. The modified dihybrid ratio of duplicate genes is

A. 0.37917824074074

B. 0.54375

C. 0.0625694444444444

D. 0.50212962962963

Answer: C

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13. In poultry birds, the inheritance of combs is controlled by

A. Duplicate genes

B. collaborator gene

C. complementary gene

D. Both (a)and (b)

Answer: B

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14. Polygenic inheritance is controlled by

A. 1 gene

B. 3 genes

C. 2 genes

D. Both (a)and (b)

Answer: D

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15. In F_2 -generation how many shades of skin colur are obtained in polygenic inheritance?

A. 4

B. 6

C. 7

D. 9

Answer: C

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Chapter Exercise A Taking It Together Assorted Questions Of The Chapter For Advanced Level Practice

1. The resembleance of individuals to their progenitiors is called

A. heredity

B. Genetics

C. Evolution

D. None of these

Answer: A

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2. The diploid chromosome number in Pisum sativum is

A. 8

B. 10

C. 7

D. 14

Answer: D

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3. An individual, which always perform true breeding is

A. Dominant

B. Recessive

C. Hybrid

D. None of these

Answer: B

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4. Which of the following is more likely to be

A. Pureleines

B. Self-pollinated crops

C. Autopolyploids

D. Cross-pollinated crops

Answer: D

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5. Segragation of genes takes place during

A. metaphase

B. anaphase

C. prophase

D. zygote formation

Answer: B

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6. A recessive gene can be expressed if the genotype is

A. Homozygous rescessive

B. Homozygous dominant

C. heterozygous

D. Both (b) and (c)

Answer: A

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7. A chestnut- coloured horse crossed with a white coloured horse results in a palomino coat colour. This is asn example of ..... Inheritance.

A. dominant

B. recessive

C. codominant

D. corecessive

Answer: C

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8. What is the genotype for a short pea plant

A. tt

B. Tt

C. TT

D. Cannot be determined

Answer: A

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9. Which concept is not associated with the work of Mendel?

A. Dominance

B. Independent assortment

C. Use and misuse

D. Segregation

Answer: C

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10. Alternative form of genes for a particular charcteristic are called

A. homologous chromosomes

B. allele

C. linked genes

D. genotypes

Answer: B

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11. In humans, MN blood group is an example of

A. codominance

B. A dihybrid

C. Opleiotropy

D. Incomplete dominance

Answer: A

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12. Violet flower colour in garden pea is ....trait.

A. Rescessive

B. Dominant

C. epistatic

D. Complementary gene

Answer: B

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13. A fruitfly has two genes for eye colour, but each of its sperm cell has only one. This illustrates

A. Segregation

B. Independent assortment

C. linked genes

D. pleiotropy

Answer: A

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14. The offspring of mating between two pure breeding strains called

A. Hybrid

B. mutant

C. the P- generation

D. the F_2 -generation

Answer: A

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15. For a given character, a gamete is always

A. Homozygous

B. pure

C. Hybrid

D. Heterozygous

Answer: B

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16. Who amongst the following scientist rediscovered Mendel's work ?

A. TH Morgan

B. W Bateson

C. E Strasburger

D. Von Tschermak

Answer: D

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17. Hybrid are generally superior to parents due to

A. heterosis

B. Homozygosity

C. heterozygosity

D. Parents are generally weak

Answer: A

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18. F_2 - generation is produced by

A. Crossing F_1 progeney with one of th eparents

B. selfing the progency of two individual parents

C. Selfing the parents

D. recessive cross between individual parents

Answer: B

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19. Genetics deal with

A. heredity and variations

B. heredity

C. Mutations

D. Nuclear and cytoplasmic inheritance

Answer: A

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20. Polymorphism is due to

A. Monogenic inheritance

B. polygenic inheritance

C. Both (a) and (b)

D. None of these

Answer: C

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21. An organism with two copies of the same allele is

A. Homozygous for that trait

B. Homologous for the allele

C. heterozygous for that trait

D. heterologous for the allele

Answer: A

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22. An organism with two different alleles is

A. Homozygous for that trait

B. Homologous for the allele

C. heterozygous for that trait

D. heterologous for the allele

Answer: C

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23. A wild type is

A. The phenotype found most commonly in nature

B. The dominant allele

C. Designated by a small letter if it is recessive or a capital letter if it is dominant

D. all of the above

Answer: A

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24. A test cross distinguishes between :

A. Two homoxygous forms

B. A homoxygous dominant and a heteroxygous form

C. two heteroxygous forms

D. A homozygous recessive and a heteroxygous form

Answer: B

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25. Medel started his experiments with pure strains of peas. A pure strain was developed by removing all

A. Female plants

B. male plants

C. typical plants in each generation

D. weak plants

Answer: C

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26. Mendelian recombinations are due to:

A. linkage

B. modification

C. Independent assortment of characters

D. mutations

Answer: C

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27. How many different kinds of gametes can an organism of genotypes A/a, B/B, C/c produce?

A. 3

B. 4

C. 9

D. 16

Answer: B

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28. When a monohybrid is crossed with a recessive parent, the cross is described as a

A. test cross

B. Monohybrid cross

C. dihybrid cross

D. None of these

Answer: A

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29. Cross between AaBB and aaBB will form

A. 1 AaBB:1aaBB

B. All AaBB

C. 3 AaBB: 1aaBB

D. 1 AaBB: 3 aaBB

Answer: A

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30. How many types of gametes are formed by pea plant having YYRRtt genotype?

A. 2

B. 4

C. 8

D. None of these

Answer: D

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31. Heterozygous organism for two genes shall be

A. Rryy

B. Rryy

C. RrYy

D. RRYy

Answer: C

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32. RrYy yields gamete types

A. One

B. Two

C. Three

D. Four

Answer: D

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33. Double homozygous individuals in F_2 generation of a dihybrid cross would be

A. 1/16

B. 2/16

C. 6/16

D. 9/16

Answer: B

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34. A genotype AaBBCcDd can produce how many types of gametes?

A. 4

B. 3

C. 8

D. 64

Answer: c

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35. A modified dihybrid mendelian ratio of 9:3:4 indicates

A. supplementary gene

B. complementary gene

C. lethal genes

D. epistatic genes

Answer: A

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36. How many types of gametes can by formed by individuals whose genotype is Aa,Bb, Cc, Dd and Ee?

A. 24

B. 12

C. 16

D. 36

Answer: C

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37. Back cross is used for determining

A. Purity of gamets

B. mutant genes

C. Genotype of one of the parent

D. sibling relationship

Answer: C

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38. What will be the phenotypic ratio in a situation of complementary gene interction?

A. $9:7$

B. $15:1$

C. $13:3$

D. $9:3:4$

Answer: A

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39. What is the F_2 dihybrid ratio in cecessive epistatic interaction of gene

A. $15:1$

B. $13:3$

C. $8:3:3:1$

D. $9:3:4$

Answer: D

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40. In Mirabillis jalapa, hybrid between red and white flowered plants produces pink flowers due to:

A. mutation

B. epistasis

C. pleiotropism

D. Incomplete dominance

Answer: D

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41. A test cross of Aa Bb Cc produces how many phenotypes?

A. 4

B. 8

C. 12

D. 16

Answer: B

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42. In trihybrid cross, the total number of genotypes formed are

A. 25

B. 26

C. 27

D. 28

Answer: C

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43. The gene, which masks the expression of non- allelic dominant gene, is called

A. Epistatic gene

B. hypostatic gene

C. dominant gene

D. lethal gene

Answer: A

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44. Heterozygous organisms Bb produce B and b gametes, The chance of b combining with B or b are

A. 1/1

B. 1/2

C. 1/4

D. None of these

Answer: B

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45. Number of different ypes of gametes produced by an individual with genotype Aa Bb Cc Dd wil be

A. 16

B. 64

C. 4

D. 128

Answer: A

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46. How many different types of phenotypes would be produced in F_1 progeny in the following cross that obeys Mendel's law of independent assortment AA BB CC x aa bb cc?

A. 1

B. 64

C. 27

D. 8

Answer: A

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47. In dihybrid cross, out of 16 plants obtained, the number of genotypes shall be

A. 4

B. 9

C. 16

D. 12

Answer: B

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48. The minimum progeny population size allowing for random union of all kinds of gametes from Aa Bb Cc parents is

A. 9

B. 27

C. 64

D. 100

Answer: C

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49. An individual heterozygous for two alleles (Aa Bb) produces one million sperms. How many of the sperms will have both recessive parental type (aabb). What would be the ratio of offspring in the next generation?

A. 0.25 million

B. 1 million

C. 2 million

D. 0.5 million

Answer: A

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50. Two genes 'A' and 'B' are linked. In a dihybrid cross involving these two genes, the F_1 hetrozygote is crossed with homozygous recessive parental type (aa bb). What would be the ratio of offspring in the next generation?

A. 1: 1: 1: 1

B. 9: 3: 3: 1

C. $3:1$

D. $1:1$

Answer: A

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51. In a dihybrid cross of heterozygotes, what proportion of the offsprin will be phenotypically dominant for both traits?

A. 3/4

B. 3/16

C. 1/4

D. 9/16

Answer: D

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52. Indentify the recessive trait among the following given below.

A. Coloured lint in cotton

B. Rust immunity in wheat

C. Round starcny kernal in maize

D. Branched habit in sunflower

Answer: B

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53. Mendel found that the F_1 always resembled

A. Either one of the parent

B. Both of the parents

C. None of the parents

D. May be (a) (b)and (c)

Answer: A

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54. In first filial progeny of his experiment, Mendel observed that all the F_1 progeny poants were

A. dwarf

B. tall

C. hybrid

D. All of these

Answer: B

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55. Mendel formulated the law of purity of gametes on the basis of:

A. Test cross

B. back cross

C. Monohybrid cross

D. dihybrid cross

Answer: C

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56. Mendel's law of independent assortment can be demonstrated by

A. test cross

B. back cross

C. Monohybrid cross

D. dihybrid cross

Answer: D

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57. A recessive character in pea is

A. Red flower

B. Round seed

C. Green cotyledons

D. Tall plant

Answer: C

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58. percentage of heterozygous individuals obtained from selfing of Rr individuals is

A. 1

B. 0.75

C. 0.5

D. 0.25

Answer: C

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59. The genetic concept of segregation and independent assortment are most likely to be associated with

A. Mitosis and meiosis

B. Meiosis and fertilisation

C. Meiosis and reproduction

D. Mitosis and cleavage

Answer: B

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60. Occasionally, a single gene may express more than one effect. The phenomenon is called

A. Multiple allelism

B. mosaicism

C. pleiotropy

D. polygny

Answer: C

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61. Which one of the following traits of Garden Pea studied by Mendel was a recessive feature ?

A. Axial flower position

B. Green seed colour

C. Green pod colour

D. Round seed shape

Answer: B

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62. Mendel proposed that something was being stably passed down from parent to

offsprings through the gametes. He called these things as

A. Genes

B. factors

C. characters

D. traits

Answer: B

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63. Pure line is connected with development of

A. Homozygosity

B. Heterozygosity

C. Homozygosity and self assortment

D. heterozygosity and linkage

Answer: C

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64. Allelomorphic pair implies

A. A pair of contrasting characters

B. a pair of non-contrasting characters

C. any two characters

D. sex-linked characters

Answer: A

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65. Mendel found certain traits not to assort independently. It is due to

A. Dominance

B. Linkage

C. Crossing over

D. Amitosis

Answer: B

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66. The proportion of the plants that Mendel found on self-pollination of F_1 plants, was

A. 1/4th tall and 3/4 dwarf

B. 1/4 th dwarf and 3/4th tall

C. 1/4th dwarf, 1/2th hybrid and 1/4 tall

D. 1/2 dwarf, 1/2th hybrid and 1/4th tall

Answer: C

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67. In Mendel's experiment, the contrasing traits

A. showed belending at F_1 stage

B. Shwed blending at F_2 stage

C. Did not show any blending at either F_1 or F_2 stage

D. Showed blending at both F_1 and F_2 stage

Answer: C

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68. Genes

A. Are the unit of ineritance

B. Contain the information that is required to express a particuar trait in an orgainism

C. Both (a) and (b)

D. Were the unit of recombination

Answer: C

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69. Crossing over in diploid organism is responsible for

A. Dominance of genes

B. Linkage between genes

C. Recombination of linked genes

D. Segregation of alleles

Answer: C

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70. What is true of law of independent assortment ?

A. Applicable to all the dominant alleles

B. Applicable to all genes on the same chromosome

C. Not applicable to genes present on the same chromosome

D. Applicable to all the recessive alleles

Answer: C

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71. When a cluster of genes shows linkage behaviour they

A. Do not show chromosome map

B. INDUCE CELL DIVISION

C. Do not show independent assorment

D. Show recombination during meiosis

Answer: C

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72. An allele is dominant if it is expressed in:

A. Both in homoxygous and heteroxygous state

B. Only in homozygous conditions

C. Neither in homozygous nor in heterozygous condition

D. Only in heterozygous conditions

Answer: A

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73. Law of Mendel which is not completely applicable is:

A. law of dominance

B. Law of segregation

C. Law of independent assortment

D. codominance

Answer: A

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74. The process of removing stamen from flora buds during hybridisation experiments is

A. Capping

B. Selfing

C. Emasculation

D. Crossing over

Answer: C

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75. Mendel's law apply only when

A. F_1 in monohybrid cross shows two types of individuals

B. The characters are linked

C. parents are pure-breeding

D. First pair of contrasing character is dependent upon other pairs

Answer: D

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76. The inheritance of flower colour in Antirrhinum (dog flower) is an example of

A. Segregation

B. Dominance

C. Incomplete dominance

D. Complete dominance

Answer: C

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77. Mendel's law of indupendent assortment was based upoon the observation on

A. Monohybrid crosscs

B. dihybrid crosses

C. trihybrid crosses

D. All of these

Answer: B

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78. Mendel carried out experiment on pea plant in

A. Vienna University

B. University of Austria

C. Monastry of Brunn

D. School of Brunn

Answer: C

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79. Mendelism is related with:

A. Heredity in living beings

B. Meiosis during sexual reproduction

C. Mutation in living organisms

D. None of the above

Answer: A

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80. Mendel proposed that in a true breeding, tall or dwarf pea variety of the allelic pair of genes for height are

A. Homozygous

B. heterozygous

C. hybrid

D. Both (b) and (c)

Answer: A

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81. The hybrids containing alleles of contrasting traits are called

A. hybrids

B. recombinants

C. homozygous

D. heterozygous

Answer: D

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82. The diagram, which shows the production of gametes by the parents, the formation of the Zygotes and the F_1 and F_2 plants are

A. idiogram

B. Punnett's square

C. Checker board

D. None of these

Answer: B

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83. Punnett's square is a graphical representation to calculate the probability of

A. All possible genotypes of offsprings in a genetic cross

B. all possible phenotypes of offsprings in a genetic cross

C. Both (a) and (b)

D. Only the hybrid offsprings in a genetic cross

Answer: C

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84. Mendel crossed the tall plant from F_2 with a dwarf plant. It is called a

A. back cross

B. Test cross

C. reciprocal cross

D. none of these

Answer: B

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85. The proginies of test cross can easily be analysed to predict the

A. Genotype of the test organisms

B. Phenotype of the test organisms

C. Ratio of (a) and (b)

D. all of the above

Answer: A

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86. A heterozygous parent produces

A. One kind of gamete

B. Two kinds of gametes each having two alleles

C. Two kinds of gametes each having one allele in equal proportion

D. two kind of gametes

Answer: C

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87. In a monhybird cross when F_1 is crossed with homozygous dominant parent then which type of offspring will obtain

A. Dominant: Recessive 3: 1

B. Only recessive

C. Dominant: recessive 1:1

D. No recessive

Answer: D

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88. Organism of pureline is that which produces individuals of

A. Dominant characters

B. Recessive characters

C. Its own characters

D. intermediate type

Answer: C

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89. For obtaining hybrid ratio, which characters of the plant are taken into account?

A. Dominant characters

B. Recessive characters

C. new characters

D. All of these

Answer: B

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90. In 1900 AD, three biologists independently rediscovered Mendel's principals. They were:

A. De Vries, Correns and Tschermak

B. Sutton, Morgan and Bridges

C. Avery, McLeod and McCarty

D. Bateson, Punnett and Bridges

Answer: A

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91. How many contrasting traits of Pea pod were chosen by Mendel?

A. Two homoxygous forms

B. Three

C. Four

D. Seven

Answer: D

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92. Which of the following pair is incorrect?

A. Presence of webbed digit in humans-

Recessive

B. Presence of glaucoma in human - Dominant

C. Attached ear lobes- Recessive

D. Brown iris colour-Dominant

Answer: A

View Text Solution

93. An exception to Mendel's law, the phonomenon associated with

A. Independent assortment

B. Segregation

C. Dominance

D. Linkage

Answer: D

Watch Video Solution

94. Mendel's law of segregation was based on the separation of alleles in the garden pea during:

A. Pollination

B. Embryonic development

C. seed formation

D. gamete formation

Answer: D

Watch Video Solution

95. Which of the statement is correct?

A. Each back cross is a test cross

B. Each test cross is a back cross

C. Both cross have the same meaning

D. reappearance of similar chacters in a test cross is called a back cross

Answer: B

 Watch Video Solution

96. Which of the following pea p,ants will always be white flowered?

A. CcPp

B. CCPP

C. ccPP

D. CCpP

Answer: C

Watch Video Solution

97. In mendel's experiment nature of seed coat , flower colour position of flower . Pod volour serm hight etc ,are referred to as

A. alleles

B. genotypes

C. phenotypes

D. all of the above

Answer: C

Watch Video Solution

98. Mendel's law is still true because it takes place in:

A. sexually reproducing plants

B. asexually reproducing plants

C. Both (a) and (b)

D. Apomictic reproducing plants

Answer: A

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99. Hybrid breakdown refers to the condition when offspring are physiological inferior to the following generation

A. F_1

B. F_2

C. P_1

D. All of these

Answer: A

Watch Video Solution

100. A plant of F_1-generation has genotype 'AABbCC'. On selfing of this plant, the phenotypic ratio in F_2-generation will be

A. $3:1$

B. $1:1$

C. $9:3:3:1$

D. $27:9:9:9:3:3:3:1$

Answer: A

 Watch Video Solution

101. The genes controlling the seven pea characters studied by Mendel are now known

to located on how many different chromosomes?

A. Five

B. Four

C. Seven

D. Six

Answer: B

Watch Video Solution

102. Test cross in plants or in Drosophila involves crossing:

A. Between two genotypes with recessive trait

B. Between two F 1hybrids

C. The F_1 hybrid with a double recessive genotype

D. between two genotypes with dominant trait

Answer: C

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103. When dominant and recessive alleles express themselves together, it is called

A. Codominance

B. Dominance

C. Amphidominance

D. Pseudodominance

Answer: A

 Watch Video Solution

104. How many different kinds of gametes will be produced by a plant having the genotype AaBbCc?

A. Three

B. Four

C. Nine

D. Eight

Answer: D

 Watch Video Solution

105. Phenotype of an organism is result of

A. Mutation and linkage

B. Cytoplasmic effects and nutrition

C. Environmental changes and sexual dimorphism

D. Genotype and enviroment interactions

Answer: D

Watch Video Solution

106. In his experiments, Mendel obtained wrinkled pea. The wrinkling was due to deposition of sugar instead of starch. This happended due to the

A. amylase enzme

B. Invertase enxyme

C. Diastase enzyme

D. Absence of starch-branching enzyme

Answer: D

View Text Solution

107. A plant having 24 cm long internodes is crossed with a plant having 12 cm long internodes. The hybrids have 18 cm long internodes due to

A. Recessive dominance

B. Multiple allelism

C. Complete dominance

D. Incomplete dominance

Answer: D

 Watch Video Solution

108. Ina given plant, red colour R of fruit is dominant ove rwhite fruit r, and taliness (t) is dominant over dwarness(t). It a plant with

genotype RRTt is crossed with a plant over genotype rrtt, what will be next generation?

A. 1

B. 0.25

C. 0.5

D. 0.75

Answer: C

View Text Solution

109. The F_2 generation offspring in plant showing incomplete dominance, exhibit:

A. Variable genotypeic and phenotypic ratio

B. A genotyupic ratio of 1:1

C. A phenotypic ratio of 3:1

D. Similar phenotypic and genotypic ratio is 1:2:1

Answer: D

Watch Video Solution

110. Two pea plants were subjected cross pollination. Of the 183 plants produced in the next generation, 94 plants were found to be tall and 89 plants were found to be dwarf. The genotypes of the two parental plants are likely to be:

A. TT and tt

B. Tt and Tt

C. Tt and tt

D. TT and Tt

Answer: C

Watch Video Solution

111. Which of these do not follow independent assortment?

A. Genes on non-homologous chromosomes and absence of linkage

B. Genes on homologous chromosomes

C. Linked genes on same chromosomes

D. Unlinked genes on same chromosomes

Answer: C

Watch Video Solution

112. Choose the incorrect statement.

A. Tabby colour is dominant over black in cast

B. Stumpy tail is dominant over normal tail in dogs

C. Horned cattle is dominant over horness

D. None of the above

Answer: C

View Text Solution

113. I the cell of n organism heterozygous for two pairs of genes represented by Aa, Bb,

undergoes meiosis, then the possible genotypic combination of gametes will be :-

A. AA,aB,Ab,ab

B. AB,ab

C. Aa,Bb

D. None of these

Answer: A

 Watch Video Solution

114. Self-incompatibility in tobacco is an example of

A. Plaeiotropic gene

B. Complementary genes

C. Multple. Allelism

D. Epistasis

Answer: C

View Text Solution

115. In case of incomplete dominance, F_2 generation has

A. Genotypic ratio rqual to phenotypic ratio

B. Genotypic ratio is 3:1

C. Phenotypic ratio is 3:1

D. None of the above

Answer: A

Watch Video Solution

116. On crossing two similar hybrids, the percentage of recessive is

A. 0.25

B. 1

C. 0.5

D. 0.75

Answer: A

 Watch Video Solution

117. If fur colour in mice is caused by the following genes :B =blacek and B = brown, choose the genotype for the organis, which will have brown fur?

A. BB

B. bB

C. bb

D. Either (a) and (b)

Answer: C

 Watch Video Solution

118. Assume that in mice, B = black fur, b = brown fur . If a heterozygous black mouse mates with a homozygous brown mouse, what per cent of teir offspring will have balcek fur?

A. 0.25

B. 0.5

C. 0.75

D. 1

Answer: B

Watch Video Solution

119. If Mendel had chosen more than seven traits in his plants, he might have run into some confusing results regarding the

A. Phenomenin of dominance

B. Law of segregation

C. Law of independent assortment

D. all of the above

Answer: C

View Text Solution

120. What is the major advantage of using a Punnett square?

A. Show all gametic combinations

B. Show genotypic ratios

C. Show all phenotypic ratios

D. all of the above

Answer: D

Watch Video Solution

121. What would be the colour of flowers in F_1 progeny as a result of cross between homozygous red and homozygous white - flowered Snapdragon

A. 50% red and 50% white flowers

B. Red flowers

C. Pink flowers

D. Sterile flowers

Answer: C

 Watch Video Solution

122. In Mendel's garden peas, the tall allele (D) is dominant over the dwarf allele (d) and the green pod allele is dominant (Y) over the yellow pod allele (Y). What is the genotype of a heteroxygous tall, Homoxygous green pod pea plant?

A. DdYy

B. DDYY

C. DdYY

D. DDYy

Answer: C

Watch Video Solution

123. From a single ear of corn, a farmer planted 200 kernals which produced 140 tall and 40 dwarf plants. The genotype of these offsprings are most likely

A. TT, Tt and tt

B. Tt and tt

C. TT and Tt

D. tt and tt

Answer: A

 Watch Video Solution

124. Why was Mendel fairly certain that he had a pure- bred variety when he collected seeds from a pea plant?

A. The flower is self-pollingating in these plants

B. Peas bear a large number of offspring

C. Because the varieties are so distinctive

D. He maintained extremely accurate records

Answer: A

Watch Video Solution

125. If an organism with tht genotype Ww is crossed with a Ww organism, what would be the proportion of offsprings that would be heterozygous?

A. 1/4

B. 1/2

C. 3/4

D. All would be heteroxygous

Answer: B

Watch Video Solution

Watch Video Solution

126. If genes are not linked, a genotype of PpRr can produce..... Different kinds of gametes.

A. One

B. Two

C. Three

D. Four

Answer: D

Watch Video Solution

127. Mendel was the first biologist

A. To study the mechanism of inheritance

B. To discover that chromosomes are responsible for inheritance

C. To use statistical methods in analysing his results

D. all of the above

Answer: C

Watch Video Solution

128. Mendels law of segregation states that

A. The two factors for the same trait separate in the producting of gametes

B. The two different traits will be inherited independently of each other

C. The gametes are produced by meiosis

D. all of the above

Answer: A

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129. Who coined the term gene

A. Johannsen

B. Bateson

C. Morganian genetics

D. Correns

Answer: A

Watch Video Solution

130. One reason for Mendel's success was that he

A. Repeated his experiments many times

B. Used carefully controlled experiments

C. Used plants with easily observable traits

D. all of the above

Answer: D

 Watch Video Solution

131. What would be the parent's genotypes if both were heterozygous for flower colour? (purple-W, white-w)

A. ww and ww

B. Ww and Ww

C. WW and WW

D. WW and ww

Answer: B

 Watch Video Solution

132. What phenotypes are possible from the cross, between round seeded plant and wrinkled seeded plants if both thte parents are homzygous?

A. All round

B. Round and wrinkled

C. All wrinkled

D. Slightly wrinkled

Answer: B

 Watch Video Solution

133. Which statement describes the work of Gregor Mendel?

A. He developed some basic principles of heredity without having knowledge of chromosomes

B. He developed the microscope for the study of genes in pea plants

C. He explained ht principle of dominance on the basis of the gene- chromosome theory

D. He used his knowledge of gene mutations to explain the appearance of new traits in organisms

Answer: A

Watch Video Solution

134. Mendel developed his basic principles of heredity by

A. Microscopic study of chromosomes and genes

B. Mathematical analysis of the offspring of pea plants

C. Breeding experiments with Drosophila

D. Ultracentrifugatin studies of cell organelles

Answer: B

Watch Video Solution

135. Find the correct match.

A. Multiple allelism - Coat colour in mice

B. Complementary gene - ABO blood group

C. Recessive epistasis genes - flower colour in Lathyrus odoratus

D. Duplicate genes - Fruit shape in Shepherd's purse

Answer: D

View Text Solution

136. Using the results of his experiments with pea plant crosses, Gregor Mendel discovered the

A. Principles of dominance, segregation and independent assortment

B. Intermediate inheritance and gene linkage

C. Pea plants develop mutations after exposure to radiation

D. DNA is involved in the inhertiance of dominant traits

Answer: A

 Watch Video Solution

137. In pea plants, the long- stem trait (L) is dominant and the short-stem trait(I) is recessive. Two pea plants were crossed, producing seeds that yielded 165 long-stem plants and 54 short-stem plants. The genotypes of the parent plants were most likely

A. Ll and LL

B. Ll and Ll

C. ll and ll

D. LL and ll

Answer: B

 Watch Video Solution

138. In guinea pigs, black fur (B) is dominant over white fur (b) and rough four (R) is domiant over smooth fur (r) . A cross between two Guinea pigs hybrid for both traits (BbRr x BbRr) produces some offsprings that have rough, black fur and some that have

somooth, black fur. The genotypes of these offsprings illustrate the genetic concept of

A. Intermediate inheritance

B. Multiple alleles

C. Independent assortment

D. Codominance

Answer: C

 Watch Video Solution

139. All of the offsprings produced in a cross involving a brown mink and a silver -blue mink are brown. When these brown mink offsprings wee crossed with each other, the ratio of brown to silver blue was 3:1. he results of these crosses are best explained by

A. Indpendent assortment, and crossing over

B. Codominance, segregation and recombination

C. Dominance, segregation and recombinantion

D. Recombination and intermediate inheritance

Answer: C

Watch Video Solution

140. All genes located on the same chromosome:-

A. Form different groups depending upon their relative distance

B. Form one linkage group

C. Will not form any linkage group

D. Form interactive groups that affect the phenotype

Answer: B

 Watch Video Solution

141. Person having genotype $I^A I^B$ would show the blood group as AB. Thus is because of

A. Pleiotropy

B. Codominance

C. Segregation

D. Incomplete dominance

Answer: B

Watch Video Solution

142. A cross between two tall plants resulted in offspring having few dwarf plants. What would be the genotypes of both the plants ?

A. TT and Tt

B. Tt and Tt

C. TT and TT

D. Tt and tt

Answer: B

Watch Video Solution

143. Mother and father of a person with 'O' blood group have 'A' and 'B' blood group respectively. What would be the genotype of both mother and father ?

A. Mother is homozygous for 'A' blood group and father is heterozygous for 'B'

B. Mother is heterozygous for 'A' blood group and father is homozygous for 'B'

C. both mother and father are heterozygous for 'A' and 'B' blood group

respectively

D. Both mother and father are homozygous for 'A' and 'B' blood group repectively

Answer: C

Watch Video Solution

144. Pea plants that were heterozygous for both height and colour of seed coat (TtYy) were crossed with pea plants that wwere homozygous recessive for both traits (ttyy).

The offsprings from this cross included tall plants with green seeds, tallplants with yellow seeds, short plants with green seeds, and short plants with yellow seeds. This cross best illustrates

A. Gene mutation

B. Independent assortment of chromosomes

C. Environmental influence on herdity

D. Intermediate inheritance

Answer: B

Watch Video Solution

145. In raccoons, a dark face mask in dominant over a bleached face mask. Several crosses were made between raccoons that were heterozygous for dark face mask and that were homozygous for bleached face mask. What percentage of the offspring would be expected to have a dark face mask?

A. 0

B. 0.5

C. 0.75

D. 1

Answer: B

 Watch Video Solution

146. When two heterozygous tall plants are crossed, some short plants appear in the

offspring. The appearance of these short plants illustrates

A. Segregation and recombination

B. Intermediate inheritance and gene linkage

C. crossing over and differentiation

D. Codominant inheritance

Answer: A

View Text Solution

147. In squirrels, the gene for grey fur (G) is dominant over the gene for black fur (g) . If 50% of a large litter of squirrels are grey, the parental cross that produced this litter was most likely

A. GG x Gg

B. Gg x gg

C. GG x GG

D. gg x gg

Answer: B

Watch Video Solution

148. In a certain veriety of chicken, the genes for black feather colur and the genes for white feather colour are condominant. This variety of chicken will most likely have

A. Three possible phenotypes for feather colour

B. Only two genotypes for feather colour

C. White feather colour only

D. black feather colour only

Answer: A

Watch Video Solution

149. In a certain species of mouse, grey fur (G) is dominant over cream -coloured fur (g). If a homozygous grey mouse is crossed with a cream -coloured mouse, the genot pe of the F_1 -generation will most likely be

A. 100% Gg

B. 25%GG,50%Gg and 25%gg

C. 50% GG and 50% gg

D. 75% Gg and 25%gg

Answer: A

 Watch Video Solution

150. How many geneticaly different kinds of gametes will an individual with genotype Aabb produce?

A. one

B. Two

C. Three

D. Four

Answer: A

Watch Video Solution

151. If heterozygous round seeded pea plants ae self-pollinated, the offsprings will be

A. 75% round

B. 50% heterozygous

C. 25% wrinkled

D. All of these

Answer: D

 Watch Video Solution

152. In pigeons, checkered pattern is dominant over plain pattern and red colour is dominant over brown. A checkered brown female mated

with a pain red male produced two checkered red, two plain red, and one checkered brown offspring.What are the probable genotypes of the parents?

A. CCRR and ccrr

B. CcRr and CRrr

C. CcRr and ccRR

D. Ccrr and ccRr

Answer: D

View Text Solution

153. How did Mendel's studies in genetics differ from earlier studies of brdding an inheritance?

A. Mendel worked with plants, earlier studies used animals

B. Mendle was able to explain the blending hypothesis

C. Mendel's work was more quantitative

D. Mendel worked with wild speciies, not the domesticated ones

Answer: C

Watch Video Solution

154. A true breeding fruit fly would be ..... For a certain characteristic.

A. Homozygous dominant

B. Homozygous recessive

C. Both (a) and (b)

D. heterozygous

Answer: C

Watch Video Solution

155. When looking at the inheritance of a single characteristic, Mendel found that a cross between two true breeding peas (betwwen purple and white, for example) always yielded a ..... in the F_2 -generation.

A. 1 : 1 phenotypic ratio

B. 3 : 1 genotypeic ratio

C. 1 : 2 : 1 phenotypic ratio

D. 3 : 1 phenotypic ratio

Answer: D

 Watch Video Solution

156. Mendel made some crosses where he looked two characteristics at once round yellow peas crossed with wrinkled green peas,

for example. He did this because he wantedto find out

A. How new characteristics originated

B. Whether different characteristics were inherited together or separately

C. How plants and animals adapt to their environments

D. Whether the characteristics influence each other. Whether the colour affects degree of roundness, for example

Answer: B

Watch Video Solution

157. A brown mouse is mated with a white mouse. All of their offsprings are brown. If two of these brown offsprings are mated, what fraction of their offspring will be white?

A. 1/4

B. 1/2

C. 1/6

D. None of these

Answer: A

Watch Video Solution

158. Suppose, you wanted to know the genotype of one of the brown F_2 mice in Q. 159. The easiest way to do would be to

A. Keep careful records of the parent mice

B. Mate it with a brown mouse

C. Mate it with a mouse of its own genotype

D. Mate it with a white mouse

Answer: D

Watch Video Solution

159. Some dogs bark, while trailing, others are silent. The barker gene is dominant, the silent gene is recessive. The gene gor normal tail is dominant over the gene for screw (curly) tail. A

barker dog with a normal tail which is heterozygous for both characteristics is mated with another dog of th same genotype. What fraction of their offspring will be barkers with the screw tails?

A. 3/4

B. 9/16

C. 3/16

D. 1/4

Answer: C

View Text Solution

160. Two heterozygous tall pea plants with purple flowers are crossed. The probability that one of their offspring will have white flowere is 1/4 . The probability that one of their offspring will be short is 1/4. what is the probability that one of their offspring will be short with white flowers?

A. Zero

B. 1/16

C. 1/8

D. 1/4

Answer: B

View Text Solution

161. Which of the following illustrates pleiotrophy?

A. In fruitflies, the genes for scarlet eyes and hairy body are located on the same

chromosme

B. Matings between earless sheep and long-eared sheep always result in short-eared offspring

C. Wheat kernels can rangs from white to red in colour, a trait controlled by several genes

D. The human cystic fibrosis gene causes many symptoms, from respiratory distress to digestive problems

Answer: D

View Text Solution

162. According to Mendel's law of segregation,

A. There is a 50% probability that a gamete will get a dominant allele

B. Gene pairs segregate independently of other genes in the gamete formation

C. Allele pairs do not separate in gamete formation

D. The laws of probability determine the gamete formation

Answer: B

Watch Video Solution

163. The F_2 -generation of a cross

A. Has a phenotypic ratio of 3 : 1

B. Is the result of the self-fertilisation or crossing of F_1 individuals

C. Can be used to determine the genotype of individuals with the dominant phenotype

D. Has a phenotypic ratio that equals its genotypic ratio

Answer: B

Watch Video Solution

164. A 1 : 1 phenotypic ratio in a test cross indicates that

A. The alleles are dominant

B. One parent must have been homozygous recessive

C. The dominant phenotype parent was a heterozygote

D. The alleles segregated independently

Answer: C

Watch Video Solution

165. Two true breeding varieties of garden peas are crossed. One parent had red, Axial flowers, and the other had white, terminal flowers. All F_1 individuals had red, exial flowers. If 100 F_2 offsprings wee counted, how many of them would you expect to have red axial flowers?

A. 6

B. 25

C. 19

D. 56

Answer: D

 Watch Video Solution

166. An interraction between non-allelic genes in which an allele at one locus prevents expression of an allele at another locus, but not vice versa, is called

A. Collaboration

B. Complementation

C. Epistasis

D. Modification

Answer: C

 Watch Video Solution

167. If an animal's coat colour depends on two separate gene pairs, in which the pair A codes for the pigment protain and the pair B codes

for the control mechanism that turns on pigment production, then a cross between two albinos (no pigments), one with defects at locus A and the other with defects at locus B, will produce offsprings that are all

A. Albinos

B. Streaked, in which pigmented areas are mixed with unpigmented aresas

C. Pink-eyed and blind

D. Normally pigmented

Answer: A

View Text Solution

168. When two or more non-allelic gene pairs affect the same character in the same way, this is called

A. Polygenic inheritance

B. Pleiotropy

C. Total penetrance

D. Additive expressivity

Answer: A

Watch Video Solution

169. Diseases caused by pleiotropic genes are

A. Syndrmes

B. Reversible by diet therapy

C. Reversible by gene therapy

D. Extremely rare

Answer: A

View Text Solution

170. One of the Mendel's pure strains of pea plants had green peas. How many different kinds of eggs could such a plant produce with regard to pea colour?

A. One

B. Two

C. Four

D. Eight

Answer: A

 Watch Video Solution

171. One pure strain of pea plants developed by Mendel had yellow peas and another strain had green peas.All the offsprings from crosses between these two parental(p) strains of plants had yellow peas. In these plants, the allele for yellow pea colour is

A. Recessive to the allele for green colour

B. Dominant over the allele for green colour

C. Epistatic over other alleles

D. Expressed only in gametes

Answer: B

Watch Video Solution

172. How many different kinds of female gametes are produced by the F_1 offsprings from a cross between a pure strain of plants

with yellow peas and a pure strain of plants with green peas?

A. One

B. Two

C. Four

D. Eight

Answer: B

Watch Video Solution

173. If the P or parental generation was pure strain with green peas crossed with a pure strian with yellow peas, and their offsprings (the F_1-generation) were self-pollinated, then the F_2-generation would be

A. All plants with green peas

B. All plants with yellow peas

C. Half plants with green peas and healf plants with yellow peas

D. 3/4 plants with yellow peas and 1/4 plants with green peas

Answer: D

Watch Video Solution

174. In Mendel's crosses beginning with two pure strains of pea plants, one with yellow peas (Y/Y) and the other with green peas (y/y),the test cross was done between F_2

offspring with yellow peas and a pure strain of plants with the genotype

A. YY

B. yy

C. Yy

D. YG

Answer: B

 Watch Video Solution

175. The allele for black hair colour (B) is dominant over the allele for white hair colour (b) in Guinea pigs. A test cross between a black male and a white female produced a litter of five balck and one white Guinea pigs. The genotype of ht father is

A. Unknown, due to the small sample size

B. B/B

C. B/b

D. b/b

Answer: C

View Text Solution

176. In Mendel's experiments, there are two alleles of the gene that causes pea shape- R (round) and r (wrinkled) and two alleles of the gene that causes plant height -T (tall) and t (short). How many different kinds of eggs ae produced by a short plant with wrinkled peas?

A. One

B. Two

C. Four

D. Eight

Answer: A

Watch Video Solution

177. When a pure strain of tall plants with round peas is crossed with a pure tstrain osf short plants with wrinkled peas what

proportion of the F_1-generation will be short with wrinkled peas?

A. Zero

B. 1/16

C. 1/2

D. 9/16

Answer: A

Watch Video Solution

178. When a pure strain of tall plants with round peas is crossed with a pure strain of short plants with wrinkled peas, how many differenty kinds of gamets can their offsprings (F_1-generation) produce?

A. One

B. Two

C. Four

D. Eight

Answer: C

Watch Video Solution

179. When a pure strain of tall plants (T/T) with round peas (R/R) is crossed with a pure strain of short plants (t/t)with wrinkled peas(r/r), a F_1-generation is produced. When these F_1 plants self-pollinate, how many genotypes (with regard to the genes for height and pea shape) are produced in the F_2-generation?

A. 4

B. 6

C. 9

D. 16

Answer: D

Watch Video Solution

180. When a pure strain of tall plants (T/T) with round peas (R/R) is crossed with a pure strain of short plants(t/t) with wrinkled peas (r/r), a F_1 -generationis produced. The alleles for short and wrinkled are recessive to those

for tall and round, respectively. When these F_1 plants self-pollinate, what proportion of the F_1 plants self -pollinate, what proportion of the F_2-generation is short with wrinkled peas?

A. Zero

B. 1/16

C. 1/2

D. 9/16

Answer: B

Watch Video Solution

181. In watermelon, the allele for green colour (G) is dominant over the allele for striped colour (g) and the allele for short shape (S) is dominant over the allele for long shape (s) . When long, striped watermelons are crossed with watermelons heterozygous for both traits, what proportion of the offspring are striped and short

A. 0

B. 1/4

C. 1/2

D. 9/16

Answer: B

View Text Solution

182. If Mendel had studied 8 traits using pea plant with 14 chromosomes, he would

A. Not have proposed that chromosomes are carriers of hereditary factor

B. Not have discovered the law of independent assortment

C. Have not discovered sex linkage

D. Have discovered polygneic inheritance

Answer: B

Watch Video Solution

183. When a particular characteristic of an individual, e.g. petal colour, shows variation

among the offspring produced after the indiviual is selfed, it is said to be

A. Pure-breeding

B. True-breeding

C. homozygous

D. heterozygous

Answer: D

View Text Solution

184. When two individuals, heterozygous for the same genes, are bred together, they produce

A. Only dominant phenotypes, all of he same genotypes

B. Only recessive phenotypes

C. Only dominant phenotypes of different genotypes

D. Both recissive and diminant phentypes. The Latter being of two genotypes

Answer: D

Watch Video Solution

185. If red short horn cows are mated with white short horn bulls, the coat of the resulting calves carry both red and white hairs, giving a red roan. This is a case of

A. Incomplete dominance

B. Codominance

C. Epistasis

D. Complete dominance

Answer: D

View Text Solution

186. Genes A and B are necessary for normal hearing. A deaf man marries a deaf woman and all their children have normal hearing. The genotype of the parents are

A. AAbb and AAbb

B. Aabb and aaBb

C. Aabb and aabb

D. aaBB and aaBb

Answer: C

 Watch Video Solution

187. The emportan assumption is made by Mendel and sustaintiated by the discovery of meiosis is/are the

A. Law of segregation

B. Law of independent assortment

C. Both (a) and (b)

D. Constant number of chromosomes in members of the same species, which is maintained by formation gametes and the act of fertilisation

Answer: C

 Watch Video Solution

188. Two black Guinea pigs are mated together on several occasions. Their offsprings are invariably black. However, when their black offsprings are, mated wit white Guinea pigs, half the matings results in litters containing black babies only and the other half equal numbers of black and white babies. If colour is determined by a single pair of alleles, the genotypes of the two parents are

A. Homozygous dominant and heteroxygous

B. Homozygous dominant and homzygous recessive

C. both homozygous dominant

D. both heterozygous

Answer: A

View Text Solution

189. The validity of the F_1 hybrid is determinded by

A. Breeding together brothers and sisters of the F_1 -generation

B. Back crossing one or more of the F_1 individuals

C. test crossing one or more of the F_1 individuals

D. Producing large progeny

Answer: C

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190. Choose the best explanation for the mechanism of inheritance, keeping in mind Mendel's laws of segregation and independent assortment.

A. A characteristic is inherited in combination with others

B. The presence of one characteristic(e.g. colour) modifies the inheritance of the other (e.g shape)

C. A characteristic (say shape) is inherited independent of the influence of others (e.g. colour)

D. Rare combinations of characters are always due to mutations, which are inherited by the progency

Answer: C

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191. Choose the best statement that explains Mendel's law of segregation.

A. Dominant and recessive traits are transmitted independently from one generation to the next so that independently from one generation to the next so that neither trait has any influence on the inheritance of the other

B. Inheritance of one gene is not influenced by the inheritance of another and genes assort independently in successive generarions

C. One allele of a gene is dominant over the other

D. One gene masks the effect of the other and is not transmitted independently from one generation to another

Answer: A

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192. A 15:1 F_2 ratio of a cross between a wheat variety with red kernels (homozygous for two dominant genes) and another with white kernels shows

A. Polygenic inheritance

B. That the two genes are complementary

C. Single factor inheritance

D. That it is a test cross

Answer: A

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193. In cats, a coat colour gene is located on the X-chromosome. Bb or B is balck, bb is yellow and Bb is tortoise-shell. Which of the folloiwng statements is false?

A. Mating a black tom with a yellow tabby could give female tortoise-shell kittens

B. The same mating can give male tortoise-shell kittens

C. A yellow male mated with a tortoise-shell female could give black male kittens

D. Selfing of a tortoise-shell kittens can give rise to black tom

Answer: C

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194. Mirabilis, a homozygous plant with red flowers, if crossed with another homozygous plant with white flowers, produces pink-plowered progency.

A. This a an example of a test cross

B. It would be expected that the pinks would not breed true

C. This shows that the genes blend in F_1

D. This proves that colour has a genetic basis

Answer: B

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195. In pea plant, the genes for tallness (T) and for green pod colour (G) are dominant and present on separate chromosomes. Its recessive alleles are t and g. What would be the genotype of female gamete of TtGg and of male gamete of TTgg?

A. TG, Tg, tG, tg female and Tg male

B. Female Tt, TG,Tg and tg and male Tg

C. Female TT and Tg, and male Tg

D. Female TT and TG, and male Tg

Answer: A

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196. Identify the pair that does not match.

A. 1:2:2:4:1:2:1:2:1 - Dihybrid genotypic ratio

B. Inheritance of ABO blood group - Multiple allelism

C. One gene pair masks the effect of another pair - Epistasis

D. Incomplete dominance - Reported by Mendel

Answer: D

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197. Identify the correctly matched pair.

A. Genetic make up of gametes - heterosis

B. Identical allele of gene - Homozygous

C. Genes that fail to express in F_1 - Epistatic

D. Incomplete dominance -Complementary genes

Answer: B

 Watch Video Solution

198. What will be the result of a cross between TtGG and ttGG?

A. One TtGG and one ttGG

B. Three TtGg and one ttgg

C. Two TtGg, one TTGG and one ttGG

D. Nine TtGG, three TTGG, three TtGg and one ttgg

Answer: A

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199. Indentify the correct statement.

A. Pleiotropy is caused by a gene, which has multiple phenotypic effect

B. Pleiotropic genes exhibit single phenotype

C. Lethal genes cause the appearance of ancestral character

D. Sickle-cell anaemia is an example of multifactorial inheritance

Answer: A

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200. Which of the following statements is wrong?

A. TtRr represents the genotype of dihybrid condition

B. Epistatic gene masks the expression of non-allelic dominant gene

C. 9:3:4 phenotypic ratio is an instance of recessive epistasis

D. Eye colour in human sis an example of codominance

Answer: D

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201. If a plant is heterozygous and is designated Bb (Mm) and produees two kinds of gametes fertilising either B(M) or b(m). The probability of B(m) gamete fertilising either B(M) or b(m) is

A. 1/2

B. 0/2

C. 1/1

D. 1/4

Answer: A

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202. The independent assortment of two pairs of genes located on non-homologous chromosomes occur as a result of the random orientation of chromosomes during

A. Telophase of the first meiotic division

B. The brief interphase between the two meiotic divisions

C. Prophase of the second meiotic division

D. Metaphase of the first meiotic division

Answer: D

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203. Mendel crossed plants with red and white flowers. In the F_1 only red flowereed plants wee found. Two F_1 plants were crossed and in F_2 -generation 2950 red and 1050 white flowered plants were obtained. It is reasonable, he concluded that

A. Mutation had occurred

B. The genes for white flower is incompletely dominant

C. The probability of white flowereed plant is 1/4

D. No reason can be attributed

Answer: C

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204. Mendel studied inheritance for seven pairs of characters in pea. For a study of independent assortment, seven characters can be arranged in 21 possible pairs. If you are told that in one of these of 21 pairs, independent assortment was not observed in repeated later studies, what would be your reaction?

A. It is impossible

B. All the later workers must have committed mstakes

C. Mendel might not have studied cell with 21 combinations

D. Mendel's principle of independent assortment may be wrong

Answer: D

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205. In Cucurbita pepo, 'W' gene is epistatic over 'Y' and y' (responsible for the appearance of yellow and green coloured fruits

respectively) while'w' gene is ineffective. The ratio of the fruits of different colours in the progency of the cross WwYy x WwYy is

A. 9 white : 7 yellow: no green

B. 3 white: 4 yellow: 1 green

C. 12 white: 3 yellow: 1 green

D. 2 white: 1 yellow: 1 green

Answer: C

 Watch Video Solution

206. In a dihybrid crossm if you get $9:3:3:1$ ratio it denotes that

A. The alleles of two genes are intracting with each other

B. It is a multigenic inheritance

C. It is a case of multiple allelism

D. The alleles of two genes are scgregation independently

Answer: D

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207. In addition to pea, Mendel had carried out hybridisation experiments in another plant also, where he could not establish the findiangs he had previously obtained on pea plants. This plants wa

A. Bean

B. Maize

C. Antirrhinum

D. Hieracium

Answer: D

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208. The reason why pea plants were more suitable than dogs for Mendel's experiments?

A. Thee were no pedigree records of dogs

B. Pea plants can be self -fertilised

C. All pea plants have 2n number of chromosomes

D. Dogs have different colour

Answer: B

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209. A hybrid black coated Guinea pig produces two million sperm cells. Approximately, what number its sperm cells contain the recessive gene for white colour?

A. 1.0 million

B. 2.0 million

C. 2.25 million

D. 3.5 million

Answer: A

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210. A dwarf pea plant was treated with gibberellic acid. It grows as a pure tall pea plant. If the treated plant is crossed with a

pure tall plant, the phenotypic ratio of F_1 is likely to:

A. All dwarf

B. All tall

C. 50% tall, 50% dwarf

D. 75% tall, 25% dwarf

Answer: D

Watch Video Solution

211. In an experiment on pea plant, pure plants with yellow round seeds (YYRR) were crossed with plants producing green wrinkled seeds (yyrr). What will be phenotypic ratio of F_1 progeny ?

A. All round yellow

B. 1 round yellow, 1 round green, 3 wrinkled green

C. 1 round yellow, 1 round green, 1 wrinkled yellow, 1 wrinkled green

D. All wrinkled green

Answer: A

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212. An embryo resulting from the mating of two albino rabbits is transplanted into the uterus of a brown rabbit. The phenotype of this ransplant wil most probably be

A. All brown

B. all white

C. Brown with white spots

D. White with brown spots

Answer: B

Watch Video Solution

213. Three yellow round pea seeds labelled A,B,C were taken and grown into plants. The plants wee crossed to a plant grown from a green wrinkled pea. 100 seeds issuing from

each cross were sorted into phenotypic classes as follows. ltbr. i. A: 100 yellow round

ii. B:51 yellow round, 49 green round

iii. C: 24 yellow round, 26 yellow wrinkled, 25 green round, 24 green wrinkled

The genotype ofplant C would be

A. YYRR

B. YyRr

C. YyRR

D. YYRr

Answer: B

View Text Solution

214. Resistance to a fungus in pea plants is conferred by gene H' which is completely recessive to its allele 'h' for susceptibility. If a resistant female plant is crossed with a homozygous suscerptible male, what would be the order of genotype in pistillate parent, staminate parent, male gametes and egg?

A. Hh,HH,H,h

B. hh,Hh,h,h

C. hh,HH,H,h

D. Hh,HH,h,H

Answer: C

 Watch Video Solution

215. A purple flowered plant is cross-pollinated with a yellow floweree plant of the same species. The F_1 plants are all yellow-flowere. If a yellow-flowered F_1 plant is cross-pollinated with a purple-flowered plant, what percentage

of the offsprings do you expect to have purple flowers?

A. 0.75

B. 0.5

C. 0.25

D. 1

Answer: B

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216. The mating of a red fruit bearing tomato plant with yello fruit bearing tomato plant with yellow fruit bearing plants yielded 173 plants. Out of these, 84 bore red fruits, while 89 bore yellow fruits. The genotypes of the parents are most likely

A. RR,rr

B. RR,Rr

C. Rr,rr

D. rr,rr

Answer: C

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217. The dihybrid ratio 9:3:4 comes in case/s of

A. Recessive epistasis ratio

B. supplementary gene ratio

C. Both (a) and (b)

D. dominant epistasis

Answer: C

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218. In man, brown eyes (B) are dominant over blue (b) and dark hair (D) dominant over red hair (d). A man with brown eyes and red hair marries a woman with blue eyes and dark hair. They got two children, one resembling the man and other the woman, genotypes of the man and woman were

A. BBdd,bbDD

B. Bbdd,bbDd

C. BBdd,bbDd

D. Bbdd,bbDD

Answer: B

View Text Solution

219. the principle of independent assortment of characters in proved by the

A. Appearance of tall and dwarf plants in F_2 population

B. Appearance of tall and Dwarf in the ratio 3:1

C. Appearance of tall and wrinkled seed plants in the F_2 population

D. Observation that F_1 progeny is tall

Answer: B

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220. Imagine that in a pea plant, the factors for controlling seed coat colour and shape of seeds are present on the same chromosmes are very close together. Performing dihybrid experiments with these characters Mendel would not have been able to arrive at the idea of

A. Independent assortment

B. Dominance

C. Incomplete dominance

D. Segregation

Answer: A

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221. Which one of the following individuals can produce sexteen different gametes?

A. Aa,Bb,Cc, Dd

B. Aa,Bb,cc, DD,Ee, Ff

C. Aa, Bb,Cc,dd,EE,FF

D. Aa,Bb,Cc,DD,Ee,Ff

Answer: A

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222. What is the probability of homozygous plants for both dominant characters in F_2 generation of a dihybrid cross :-

A. 1/16

B. 3/16

C. 9/16

D. 12/16

Answer: A

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223. The allele for coloured seed coat '(S) is dominant over that of white seed coat (s). When flowere of a plant with white seed coat(ss) are pollinated with pollen from a plant with coloured seed caoat (Ss),the colour

of the seed coat in the developing seed would be

A. White

B. White and coloured in 1:1 ratio

C. Coloured

D. Mosaic

Answer: B

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224. There is a plant, in which genes for black or white flower colour do not show complete dominance or recessiveness. If a plant carrying only black flower colour genes is crossed with a plant with only white flower colour genes, all the offsprings have grey flowere. If two of these grey flowered plants were crossed, the theoretical progeny ratio would be

A. Wither all black or all white

B. 1/2 black, 1/2 white

C. 1/2 grey, 1/4 white, 1/4 black

D. All of the above are grey

Answer: C

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225. In pea plants, round seed is dominant over wrinkled seed. A plant heteroxygous for roundseeds was crossed with a plant with wrinkled seeds, which one of the following progenies agrees with expected result?

A. 99 round and 300 wrinkled

B. 301 round and 100 wrinkled

C. 305 round and 301 wrinkledd

D. 200 round and 100wrinkled

Answer: C

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226. The work of Mendel remained unnoticed for 34 yrs because

A. partly he published his work in an obcure journal

B. Partly his ideas were ahead of his time

C. Both (a) and (b) are correct

D. Both (a) and (b) are incorrect

Answer: C

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227. Which one of the following individuals cannot produce 16 different gametes?

A. Aa Bb Cc DD Ee Ff

B. Aa Bb Cc DD Ee Ff

C. Aa Bb cc Dd

D. Both (a) and (c)

Answer: C

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228. If one gametophyte fern plant shows characters A and B and is crossed with another plant having a and b then what will be the gametophytic generation (gametes) with respect to these two characters?

A. 1 AB: 1 Ab: 1 aB: 1 ab

B. 1 AB: 2 AB: 1 ab

C. 3 AB: ab

D. 9 AB:3 Ab: 3 aB: 1 ab

Answer: A

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229. In andalusian fowl, the heterozygous condition f alleles for balck plumange (B) and white (b) is Bluegt A blue Andalusian fowl is bred to a black Andalusian fowl, the proportion of the offsprings will be

A. 25% black:25% blue: 50% white

B. 50% black: 50% white

C. 50% white: 50%blue

D. 50% black: 50% blue

Answer: D

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230. In snapdragons, tall is dominant over dwarf and red colour of the flowere is incompletely dominant over the white and hybrid is pink. A pure tall white (TTrr) is crossed to a pure dwarf red (ttRR) and the plants of F_1 - generation are self -fertilised. What will be the expected genotype of the F_2 plants?

A. 9:3:3:1

B. 1:1:1:1

C. 3:6:3:2

D. All the plants will be phenotypically different

Answer: C

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231. If enough crosses are made between male flies of the genotype Aa and the female flies of genotype aa to produce about 1000 offsprings, which one of the following is the most likely distribution of genotype in the offsprings?

A. 750 Aa: 250aa

B. 481 Aa :519 aa

C. 249 aa: 751 aa

D. 243 AA: 517 aa:240 aa

Answer: B

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232. In an example of incomplete dominance, pure red flowers are crossed with pure white flowers and the F_1 individuals have ppink floweres, which one of the following is not correct?

A. Half of the offspring of the pink flowers will be homozygous if they are self-

pollinated

B. The gene of the hybrid pink flowers will segregate if self-pollinated

C. Pink flowers will produce only pink flowers

D. Pink flowers will produce three kinds of flowers if self-pollinated

Answer: C

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233. In dominant epistasis, gene is a dominant gene.In Cucurbita pepo, gene for white fruit colour(w) is epistatic over yellow(Y) which is dominant over green(y) . What will be the ratio of fruits colour in the cross WwYy (white) x Wwyy (white)gt

A. 9 white: 7 yellow

B. 12 white: 3 green: 1 yellow

C. 12 white: 3 yellow: 3 green

D. 6 white : 1 yellow: 1 green

Answer: D

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234. In F_2 -generation , a ratio of 1:4:6:4:1 is obtained instead of 9:3:3:1 when two pairs of genes are considered, it indicates

A. Pleiotropic effect of genes

B. Quantitative inheritance

C. Incomplete dominance

D. qualitative inheritance

Answer: B

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235. When a wheat variety of red kernel is crossed with white kerneled wheat, the F_2 ratio would be

A. 1:10:4:1

B. $9:7$

C. 1:2:4:2:4:2:1

D. 1:4:6:4:1

Answer: D

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236. Mating between balck rats of identical genotype produced offspring- 14 creamy, 47 black and 19 albino. What epistatic ratio is expected and what type of epistasis is operative?

A. 1:2:1 incomplete dominance

B. 9:3:4 , incomplete dominance

C. 12:03:01, dominant epistasis

D. None of the above

Answer: B

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237. Superiority of hybrid over its parents is called hybrid vigour(heterosis). It is maximum in corn or maize. It was given by

A. Camerarius

B. Shull

C. Bateson and Punnett

D. Fairchild

Answer: B

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238. A black female is test crossed, producing 6 black offsprings. The Probability that a black heterozygous female would this by chance alonge is approximately

A. 0.5

B. 0.25

C. 0.01

D. cannot be determined

Answer: A

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239. Short hair is due to a dominant gene L and long ahir to its recessive allele 1 (in rabbit). A cross between a short-haired female

and a long haired male produces a litter of 1 long haired and 7 short haired bunnies. What are the genotypes of the parents

A. LL(male) x ll (Female)

B. ll(male) x LL (female)

C. Ll (female) x ll(male)

D. Ll (male) x ll (female)

Answer: C

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240. Mendel's law of independent assortment holds good for genes situated on the

A. Non-homologous chromosomes

B. Homologous chromosomes

C. Extra nuclear genetic element

D. Same chromosome

Answer: B

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241. In the F_2 generation a Mendelian dihybrid cross the number of phenotypes and genotypes are

A. phenotype-4, genotype-16

B. phenotype-9,genotype-4

C. phenotype-4, genotype-8

D. phenotype-4,genotype-9

Answer: A

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242. A 1 : 1 phenotypic ratio in a test cross indicated that

A. The alleles are dominant

B. One parent must have been homoxygous recessive

C. The dominant phenotype parent was a heteroxygote

D. The alleles are codominant

Answer: C

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243. Which phase of meiosis is most directly related to the law of independent assortment?

A. Anaphase-II

B. Prophase-II

C. Metaphase-I

D. Metaphase-II

Answer: C

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244. You think that two alleles for coat colour in mice show incomplete dominance. What is the best and somplest cross to perfomr in order to support your hypothesis?

A. A test cross of a homozygous recessive mouse with a mouse of unknown genotype

B. A cross of F_1 mice to look for a 1:2:1 ratio in the offspring

C. A reciprocal cross in which the sex of the mice of earch coat colour is reversed

D. A cross of two true-breeding mic of different colour to look for an intermediate phenotype in the F_1

Answer: C

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245. It is said that Mendel proposed that the factor controlling any character is discrete and independent. This proposition was based on the

A. Results of F3-generation of a cross

B. Observation that the offspring of a cross made between the plants having two contrasting character shows only one character without any blending

C. Self-pollination of F_1 offsprings

D. cross-pollination of parental generations

Answer: B

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246. Normal maize has starchly seeds which remain smooth when dry. A mutant form has surgery seeds which go crincked when dry. When a mutant was crossed with a normal plant, an F_1 was produced which had smooth seeds. What would be the relative ratios of the

different seed types, if the F_1 was alowed to self

A. 1 smooth: 3 sugary

B. 3 smooth : 1 sugary

C. 1 smooth: 1 sugary

D. All sugary

Answer: B

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247. Choose the incorrect pair regarding the dominant characters in given organisms.

Organism

Dominant character

A. Organism-Salamander, Dominant - Dark body colour

B. Organism-Dog, Dominant - Black skin colour

C. Organism-Human,-Dominant character-Curly hairs

D. None of the above

Answer: B

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248. Mendel investigated characters in the garden pea plant that were manifested as two

A. Characters

B. Same traits

C. Opposing traits

D. Traits

Answer: C

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249. Mendel conducted his experiments using several pea lines, which ewere

A. True-breeding

B. Non-breeding

C. self-breeding

D. None of these

Answer: A

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250. Which of the following is incorrect contrasitng trait studied by Mendel?

Character

contrasting traits

A. Character-Stem height,Contrasting traits-Talldwarf

B. Character-Flower colour, Contrasting traits-Yellow/green

C. Character-Flower position, Contrasting traits-Axial/terminal

D. Character-Seed shape, Contrasting traits-Round/Wrinkled

Answer: B

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251. which of the following statements is correct, when we use alphabetical symbols for each gene?

A. Capital letter is used for the trait expresed at the F_1 stage and small alphabet for the other trait

B. Small letter is used for the trait expressed at the F_1 stage and capital alphabet for the other trait

C. Both capital and small letters are used for the both F_1 stage and other

D. Either (a) and (b)

Answer: A

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252. which of the following statements is/are correct for Mendel's law of dominance?

A. Characters are controlled by factors

B. Factors occur in pairs

C. In a dissimilar pair of factors, one member of the pair dominates the other

D. All of the above

Answer: D

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253. The law of dominance is used to explain

A. The expression of only one of the parental characters in a monohybrid cross in the F_1

B. The expression of both the parental characters ina monhybrid cross in the F_2

C. The proportion of 3:1 obtained at the F_2

D. All of the above

Answer: D

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254. Which of the following statements is correct for Mendel's law of independent assortment?

A. When two pairs of traits are combined in a hybrid, segregation of one pair of characters is independent of the other pair of characters

B. When two pairs of trait are combined in a hybrid, segregationof one pair of

character is dependent of the other pair of characters

C. When two pairs of trait are seggregated, the charcter of one pair is dependent on the character of the other pair

D. When to pairs of trait are segregated, the characters of the both pairs are independent

Answer: A

View Text Solution

255. The crossing of a homoxygous tall plant with a dwarf in F_2 would yield plants in the ratio of

A. All homoxygous dwarf

B. All heteroxygous tall

C. One homoxygous tall, one homoxygous dwarf and two heteroxygous tall

D. two tall and two dwarf

Answer: C

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256. Mendel crossed a pure white -flowered recessive pea plant with a dominant pure red-flowered plant .the first generation og hybrid from the cross should show

A. 50% white-flowered plants and 50% red -flowered plants

B. all red-flowered plants

C. 75% red-flowered plants and 25% white-flowered plants

D. all white-flowered plants

Answer: B

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257. If a cross is made between AA and aa, the nature of F_1 progeny will be

A. Genotypically AA, phenotypically a

B. Genotypically Aa, phenotypicallya

C. Genotypically Aa, phenotypically A

D. Genotypicaly aa, phenotypically A

Answer: C

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258. In wheat, when a green plant was self-fertilised, the progeny had 209 green seedlings and 14 white seedlings. The above result indicates that the parents were

A. heteroxygous for two duplicate alleles

B. True-breeding

C. heteroxygous for one allele

D. None of the above

Answer: A

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259. The genotypes of a plant variety were TtHh, Tthh, ttHhand tthh, were T=tallness and H=hairy stem. Which one of the following

crosses would produce progeny giving a phenotypic ratio approximately 1:1:1:1?

A. TtHh x TtHh

B. TtHh x Tthh

C. TtHh x ttHh

D. TtHh x tthh

Answer: D

View Text Solution

260. When experimenting with the actor of tallness in pisum sativum, Mendel obtained the results 73.97% tall and 26.03% dwrf from one of the crosses. This shows that the parents are

A. hybrid tall and pure dwarf plant

B. Hybrid tall and pure tall plant

C. Hybrid tall and hybrid tall

D. Pure tall and pure dwarf plant

Answer: C

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261. A black hybrid mouse is crossed with a pure brown mouse to produce a total of 24 young ones. Which of the following result is most likely to be correct?

A. 13 black males and 11 black females

B. 11 brown males and 13 brown females

C. 8 black males, 10 black females, 3 brown males, 3 brown females

D. 5 black males, 6 brown males, 7 black females, 6 brown females

Answer: D

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262. If enogh crosses are made between male flies of the genotype 'Aa' and the female flies of the genotype 'aa' to produce about 1000 offsprings. Which one of the following is the

most likely distributiion of genotypes in the offsprings?

A. 250Aa :750aa

B. 750 Aa: 250 aa

C. 243 AA : 517 Aa: 240 aa

D. 481 Aa :519 aa

Answer: D

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Chapter Exercise B Medical Entrances Special Format Questions Statement Based Questions

1. The advantages Mendel got by selecting Pisum sativum for his experiments were

I. well defined characters of the plant.

II. Self-fertilisation

iii. Unisexual flower.

iv. More time cosumption in growing season.

Choose the correct option.

A. I and II

B. II and III

C. only IV

D. I, II and III

Answer: A

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2. The reasons for Mendel's success was

I. attention was focussed only on one character at a time during hybridisation experiment.

ii. Gradual planned approach towards the

experimental plant.

III. Maintenance of accurate records of results obtained.

iv. the pea plant flowere wee unisexual.

choose the correct option.

A. I and II

B. II, III and IV

C. III and IV

D. I,II and III

Answer: D

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3. According to Mendel's law of purity of gametes,

I. In F_1 hybrid, the dominant and recessive character though remain together for long time but do not contaminate or mix with each other.

ii. The inheritance of one character is always independent to the inheritance of other character within the same individual.

III. the gamete formed contains the factor,

which determines single trait pertaining to a particular character

iv. two genes of allelomorphic pair are not related as dominant or recessive but each of them express itself partially. Choose the correct option.

A. I and II

B. III and IV

C. I and IV

D. II and III

Answer: A

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4. Heterosis

I. means the increased vigour of a hybrid than its parent.

ii. Has been experimentallyintroduced in a large number of plants and animals

iii.in plants is expressed in increased number of zygotes.

iv. In animals is expressed as increased resistance to environmental factors. choose the correct option.

A. I and II

B. II and III

C. only IV

D. III and IV

Answer: A

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5. Which of the following statements ae correct?

i. Expressivity of a gene is defined as the ability

to express itself uniformly in all the individuals with same genotype.

II. When one gene masks, inhibits or suppresses the expression of other, the phenomena is called epistasis.

iii. Gene penetrance is the ability of gene to express itself in an individual that carries it.

iv. Inhibiting genes interact in such a way that one dominant gene produces its effect irrespective of the presence or absence of other.

A. I,II,and III

B. II and IV

C. III and IV

D. II and III

Answer: A

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6. Which of the following statements are correct?

I. Inbreeding is the process of mating of individuals, which are more closely related

than the other in a population to which they belong.

ii. The loss of vigour is called inbreeding depression.

iii. The collaborator genes are aalso called pseudoalleles

iv. complementary genes mask the expression of other gene

A. I,II,and III

B. II and IV

C. III and IV

D. I and II

Answer: D

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Chapter Exercise B Medical Entrances Special Format Questions Assertion Reason

1. Assertion: In a monohybrid cross, we study two characters.

Reason: In a monohybrid cross, alleles exhibit dominant recessive relationship.

A. Both Assertion and Reason ae true and the Reason is a correct explanation of the Assertion

B. Both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: D

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2. Assertion : The genetic complement of an organism is called genotype

Reason : Genotype is the type of hereditary propeties of an organism.

A. Both Assertion and Reason ae true and the Reason is a correct explanation of the Assertion

B. Both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: B

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3. Assertion: Mendel worked on garden pea (Pisumsativum).

Reason : Garden pea belongs to family-Malvaceae.

A. Both Assertion and Reason ae true and the Reason is a correct explanation of the Assertion

B. Both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: C

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4. Assertion : Mendel was successful in knowing the process of inheritance.

Reason: He considered a single character at one time

A. Both Assertion and Reason ae true and the Reason is a correct explanation of the Assertion

B. Both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: A

5. Assertion: Mendel considered seven pairs of contrasting characters in his cross.

Reason : these seven characters in his cross

A. Both Assertion and Reason ae true and the Reason is a correct explanation of the Assertion

B. Both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: B

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6. Read the given statements and select the correct option

Statement 1 : Test cross is used to determine an unknown genotype within one breeding generation

Statement 2 : Test cross is a cross between F_1 hybrid and dominant parent.

A. Both Assertion and Reason ae true and the Reason is a correct explanation of the Assertion

B. Both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: C

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7. Assertion: Mendel published his results in 'The proceedings of the Brunn Natural History Society'

Reason: Mendel's law were rediscovered by three scientists independently.

A. Both Assertion and Reason ae true and the Reason is a correct explanation of

the Assertion

B. Both Assertion and Reason are true but the Reason is not the correct explanation of the Assertion

C. Assertion is true, but the Reason is false

D. Assertion is false, but the Reason is true

Answer: B

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Chapter Exercise C Medical Entrances Gallery Collection Of Questions Asked In Neet Various Medical Entrance Exams

1. A true breeding plant is:

A. One that is able to breed on its own

B. Produced due to cross-pollination among unrelated plants

C. Homoxygous and produced offspring of its own kind

D. Always homoxygous recessive in its genetic constitution

Answer: C

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2. A tall true breeding garden pea plant is crossed with a dwarf true breeding garden pea plant. When the F_1 plant were selfed the resulting genotypeswere in the ratio of

A. 1:2:1 :: Tall heteroxygous : Tall homoxygous : Dwarf

B. 3:1 :: Tall : Dwarf

C. 3 :1 :: Dwarf : Tall

D. 1 :2: 1 :: Tall homoxygous : tall heterozygous : Dwarf

Answer: D

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3. A pea plant with round seeds having large starch grains is crossed with another pure pea plant with wrinkled seeds having small starch grains. The F_1 heterozygotes formed are self pollinated. What is the phenotypic ratio of plants with round seeds and intermediate starch grains to plants with wrinkled seeds and larger starch grains expected in F_2 generation.

A. $3:4$

B. $6:1$

C. $5:6$

D. $2:3$

Answer: B

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4. A gene showing codominance has

A. One allele dominant on the other

B. alleles tightly linked on the same chromosoe

C. Alleles that are recessive to each other

D. Both alleles independently expressed in the heteroxygote

Answer: D

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5. Alleles are:

A. Different phenotype

B. True breeding homoxygotes

C. Different molecular forms of a gene

D. heteroxygotes

Answer: B

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6. How many pairs of contrasting characters in pea plants were studied by Mendel in his experiments?

A. Five

B. Six

C. Eight

D. Seven

Answer: D

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7. Arrange the follwing in decreasing order based on the results obtained in the F_2 progeny of dihybrid cross

(a) Total number of parental genotype

(b) Total number of recombinant genotypes

(c) Total phenotypes

(d) Total genotypes

A. III,II,IV,I

B. I,III,IV,II

C. IV,I,III,II

D. IV,II,III,I

Answer: C

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8. A male rabbit of genotype AABBDDEE is crossed with a female rabbit of genotype aabbddee to produce F_1 hybrid offspring. How many genetically different gametes can be produced by this F_1 hybrid

A. 4

B. 8

C. 16

D. 32

Answer: C

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9. Which of the followings is/are correct for the inheritance of genes involved in human ABO' blood grouping?

A. It is inherited by complete dominant allele

B. it is inherited by complete recessive allele

C. It is inherited by codominant allele

D. It is inherited by single gene with more than two alleles

Answer: C::D

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10. During the experiments, Mendel called genes by the term

A. Traits

B. Characters

C. Factors

D. Qulities

Answer: C

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11. If a genotype consists of different types of alleles, it is called

A. Homozygous

B. heteroxygous

C. Monoallelic

D. Uniallelic

Answer: B

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12. The alternative form of gene is called

A. Dominant

B. Recessive characters

C. Alternative genes

D. allele

Answer: D

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13. Identify the incorrect statement

A. Alleles b and c also produce sugar

B. Alleles I^A and I^B produce sugars

C. when I^B and b or I are present only I^B is expressed

D. Both I^A and I^B are present together and they express because of codominance.

Answer: A

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14. A character which is expressed in a hybrid is called:

A. Dominant

B. Recessive

C. codominant

D. epistatic

Answer: A

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15. In Mendel's experiments with Garden Pea, round seed shape (RR) was dominant over wrinkled seeds (rr), yellow cotyledons (YY) was dominant over green cotyledons(yy). What are

expected phenotypes in F_2 generation RRYY $\times$ rryy ?

A. Only wrinkled seeds with green cotyledons

B. Only wrinkled seeds with yellow cotyledons

C. Only round seeds with green cotyledons

D. Round seeds with yellow cotyledons, round seeds with green cotyledons wrinkled seeds with yellow cotyledons

and wrinkled seeds with green cotyledons.

Answer: D

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16. Fruit colour in squash is an example of

A. Recessive epistasis

B. dominant epistasis

C. Complementary genes

D. inhibitory genes interaction

Answer: B

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17. Which of the following cross will give recessive progeny in F_1 generation

A. TT x tt

B. Tt x tt

C. tt x tt

D. TT x TT

Answer: C

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18. Multiple allelism is observed in

A. flower colour in snapdragon

B. Pod colour in pisum sativum

C. haemophilia in human

D. Sex determination in birds

(e) ABO blood types

Answer:

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19. The graphical representation to calculated the probability of all possible genotypes of offspring in a genetic cross was developed by:

A. Gregor Johann mendel

B. Kornberg

C. Her Gobind Khorana

D. Reginald C punnett

Answer:

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20. In a plant species, flowere colour yellow is dominant over white and fruit shape round is dominant over elongated. Crossing was performed between two pure lines, i.e. one

having yellow-flower and round -fruit and another with white-flower and elongated-fruit. About 20 plants survived in F_1 progeny. Plants of F_1 were allowed to self-fertilise and about 960 plants survived in F_2 . If the traits follow Mendelia inheritance, the number of plants that would have yellow-flower and round -fruit in F_1 and F_2 are respectively.

A. 20, 960

B. 20, 540

C. 10, 180

D. 10, 60

Answer: B

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21. Mendel conduced hybridization experiments on garden pea for:

A. 7 years

B. 6 years

C. 5 years

D. 4 years

Answer: A

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22. Two plants one with black flower and other with white flower were crossed in an experiment. In the next generation grey coloured flowers were obtained. The reason for the result is:

A. Incomplete dominance

B. pseudodominance

C. Codominance

D. None of these

Answer: A

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23. Some genomic representation of skin colour are given below

(i) AA bb CC (ii) AA bb cc

(iii) AA BB CC (iv) aa bb cc

Which of the optin is correct for showing the darkness of colour of the skin in decreasing order

A. $III \rightarrow II \rightarrow I \rightarrow IV$

B. $I \rightarrow IV \rightarrow II \rightarrow III$

C. $III \rightarrow I \rightarrow II \rightarrow IV$

D. $I \rightarrow III \rightarrow II \rightarrow IV$

Answer: C

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24. Medel proposed something was being stably passed down unchanged from parents to offspring called

A. Genes

B. genotypes

C. Factors

D. alleles

Answer: C

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25. Inheritance of skin colour in humans in an example of :-

A. Sex-linked inheritance

B. Multiple allelism

C. Pleiotropy

D. Polygenic inheritance

Answer: D

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26. A cross between two tall Garden Pea Plants produced all tall plants. The possible genotype of the parents are

(I)TT,TT(II)TT,Tt(III)Tt,tt(IV) Tt,Tt

Correct answer is

A. III and IV

B. I and IV

C. I and II

D. II and III

Answer: C

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27. Tall(T) is completely dominant over dwarf(t). Red flower colour (R) is incompletely dominant over white (r), the heterozygous being pink. Plant having genotype of TrRr is self pollinated. What would be the proportion of plants with dwarf and pink characters in the progeny

A. 2/16

B. 1/16

C. 9/16

D. 3/16

Answer: A

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28. In Garden Pea, round shape is dominant over wrinkled shape. A pea plant heterozygous for round shape of seed is selfed and 1600 sedds produced during the cross are

subsequently germinated. How many offspring will have parental phenotype

A. 1600

B. 800

C. 400

D. 1200

Answer: D

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29. Which Mendelian idea is depicted by a cross in which the F_1 generation re- sembles both the parents

A. Law of dominance

B. Inheritance of one gene

C. Codominance

D. Incomplete dominance

Answer: C

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30. When two hybrids of rrTt and Rrtt are crossed, the phenotypic ratio of offspring shall be:

A. $3:!$

B. 9:3:3:1

C. $1:1$

D. 1:1:1:1

Answer: D

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31. Test cross is when

A. F_1 crossed with heterozygous parents

B. F_2 crossed with homozygous recessive parents

C. F_1 crossed with homoxygous recessive parents

D. F_1 crossed with homoxygous parents

Answer: C

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32. In a typical Mendelian cross, which is a dihybrid cross, one parent is homoxygous for both dominant traits and another parent is homozygous for both recessive traits. In the F_2 -generation, both parental combination and recombinantions appear. The phenotypic ratio of parental combinations to recombinations is

A. $10:6$

B. $12:4$

C. $9:7$

D. $15:1$

Answer: A

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33. Mendel found that reciprocal crosses yielded indentical results. From that he concluded

A. There is no dominance of any trait

B. Sex has no influence on the dominance of traits

C. There is iondependent assortment of traits

D. sex plays a role in deciding the dominance of a trait

Answer: B

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34. F_2 generation in Mendelian cross showed that both genotypic and phenotypic ratios are same as $1:2:1$. It represents a case of:

A. Codominance

B. dihybrid crosses

C. Monohybrid cross with complete dominance

D. Monohybrid cross with incomplete dominance

Answer: D

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35. In a dihybrid cross where two parents differ in two pairs of contrasting traits like seed color yellow (YY) and seed color green (yy) with seed shape wrinkled (rr) the number of green colo0ured seeds (yy) among sixteen products of F_2 generation will be

A. 2

B. 4

C. 6

D. 8

Answer: B

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36. Mating of an organism to a double recessive in order to determine whether it is homozygous for a character under consideration is called:

A. Reciprocal cross

B. test cross

C. dihybrid cross

D. back cross

Answer: B

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37. which of the following is best suited for codominance?

A. flower colour in snapdragon

B. MN blood group in human

C. Both (a) and (c)

D. Skin colour in human

Answer: B

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38. A common test to find the genotype of a a hybird is by

A. Crossing of one F_2 progeny with male parent

B. Crosing ofone F_2 progeny with female parent

C. Studying the sexual behaviour of F_1 progenies

D. Crossing of one F_1 progency with recessive parent

Answer: D

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39. Mendel's principle of segregation means that the germ cells always receive:

A. One pair of alleles

B. One quarter of genes

C. One of the paired alleles

D. Any pair of alleles

Answer: C

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40. When two unrelated individuals or lines are crossed, the performance of F_1 hybrids is often superior to both its parents. The phenomenon is called

A. Transformation

B. Splicing

C. Metamorphosis

D. heterosis

Answer: D

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41. If two pea plants having red (dominant) coloured flowers with unknown genotypes are crossed, 75% of the flowers are red and 25% are white. The genotypic constitution of the parents having red coloured flowers will be:

A. Both homoxygous

B. One homoxygous and other heterozygous

C. Both heterozygous

D. Both hermizygous

Answer: C

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42. A polygenic trait is controlled by 3 genes A, B and C. In a cross AaBbCc $\times$ AaBbCc, the phenotypic ratio of the offsprings was observed as :

$1:6\times:20\times:6:1$ what is the possibe value of x?

A. 3

B. 9

C. 15

D. 25

Answer: C

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43. If F_1 generation has all tall plants and ratio of F_2 generation is 3 tall : 1 dwarf, it proves

A. Law of dominance

B. incomplete asortment

C. law of segregation

D. Linkage

Answer: C

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44. Multiple phenotype is seen in

A. Pleiotropy

B. Incomplete dominance

C. Multiple allelism

D. polygenic inheritance

Answer: A

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45. How many contrasting traits of Pea pod were chosen by Mendel?

A. 3

B. 5

C. 7

D. 9

Answer: C

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46. If a cross between two individuals produces offsprings with 50% dominant character (A) and 50% recessive character (a) the genotype of parents are:

A. Aa x Aa

B. Aa x aa

C. AA x aa

D. AA x Aa

Answer: B

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47. Allelism refers to

A. Genic interactions controlling a character

B. Multiple genes controlling a character

C. Expression of many characters by a single gene

D. alternative forms of a gene at a given locus

Answer: D

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48. Mendelian principles are not applicable in case of

A. Sex linked alleles

B. asexually reproducing forms

C. sexually interbreeding forms

D. diploid homoxygous forms

Answer: B

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49. Genotypic and phenotypic ratio in monohybrid cross remains the same in case of

A. Sex linked genes

B. pseudoallelic genes

C. intermediate inheritance

D. dominant and recessive genes

Answer: C

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50. Mendel was successful in discovering the principles of inheritance as

A. he took pea plants for his experiments

B. he did not encounteer linkage between the genes for the characters he considered

C. he had an in depth knowledge on hybridisation

D. he was a famous mathematician

Answer: B

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51. Independent assortment means:

A. Separation of parental characters

B. Segregation of parental characters

C. Recombination of parental characters

D. Non-separation of parental characters

Answer: C

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52. In Mendelian dihybrid cross, when heterozygous Round Yellow are self crossed, Round Green offsprings are represented by the genotype

A. RrYy,RrYY and RRYy

B. Rryy, Rryy and rryy

C. rrYy and rrYY

D. Rryy and Rryy

Answer: D

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53. The genotype of a plant showing the dominant phenotype can be determined by –

A. Test cross

B. dihybrid cross

C. pedigree analysis

D. back cross

Answer: A

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54. Which one of the following cannot be explained on the basis of Mendel's Law of dominance

A. The discrete unit controlling a particular character is called a factor

B. Out of one pair of factors one is dominant, and the other is recessive

C. Alleles do not show any blending and both thee characters recover as such in F_2 -generation

D. Factors occur in pairs

Answer: C

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55. Inheritance of flower colour is an example of incomplete dominance, which is seen in

A. Antirrhinum

B. Pisum

C. Solanum

D. Hibiscus

Answer: A

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56. The graphical representation to calculate the probability of all possible genotypes of offspring in a genetic cross is called

A. Pedigree analysis

B. Karyotype

C. Punnett square

D. Chromosome map

genotype ratio

Answer: C

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57. Genotypic ratio of a monohybrid cross is

A. 1 :1

B. 1 :2 :1

C. 2 : 1 :2

D. 9 : 3 : 3 : 1

Answer: B

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58. Heterozygous tall plant (Tt) is crossed with homozygous dwarf (tt) plant. Then what will

be the percentage of dwarf plants in the next generation?

A. 0

B. 0.25

C. 0.5

D. 1

Answer: C

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59. A gene that masks another gene expression is called

A. Dominant

B. Recessive

C. Epistatic

D. assorted

Answer: C

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60. A dihybrid for qualitative trait is crossed with homozygous recessive individual of its type, the phenotypic ratio is:

A. 1 :2 :1

B. 3 : 1

C. 1: 1: 1: 1

D. 9 : 3 : 3: 1

Answer: C

61. When two hybrids of rrTt and Rrtt are crossed, the phenotypic ratio of offspring shall be:

A. 3 :1

B. 9 :3: 3 :1

C. 1 : 1

D. 1 : 1 : 1 : 1

Answer: D

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62. Which of the following is best suited for codominance ?

A. Both are recessive

B. Both are dominant

C. One is recessive

D. One is dominant

Answer: B

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63. In F_2 generation quantitative inheritance of 1:4:6:4:1 is obtained instead of

A. 9:3:3:1

B. 8:6:4:1

C. 7:4:1:4

D. 6:6:4:7

Answer: A

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64. Incomplete dominance is shown by:

A. Primrose

B. mirabilis

C. helianthus

D. China rose

Answer: B

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65. Cross between unrelated group of organisms is called

A. Hybrid

B. test cross

C. back cross

D. heterosis

Answer: A

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66. In pigs, white coat (W) is dominant to black (w). Two white pigs are breed to produce 9 white and 2 black pigs. What are the genotype of the parents?

A. WW x WW

B. WW x Ww

C. Ww x Ww

D. ww x ww

Answer: C

67. A dihybrid test cross-yeilding a result of 1 : 1 : 1 : 1 ratio is indicative of:

A. Four different types of gametes produced by the F_1 -dihybrid

B. Homozygous condition of the F_1 -hybrid

C. Four different types of F_1 -generation hybrid

D. Four different types of gametes produced by the P1-parent

Answer: A

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68. A condition where a certain gene is present in only a single copy in a diploid cell is called:

A. heterozygous

B. Monogamous

C. Homozygous

D. Hemizygous

Answer: D

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69. The phenomenon of a single gene regulating several phenotypes is called ?

A. multiple allelism

B. Epistasis

C. Incomplete dominance

D. Pleiotropism

Answer: D

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70. Which of the following genes show the heterozygous condition?

A. Rr

B. RR

C. rr

D. None of these

Answer: A

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71. When a dihybrid cross is fit into a Punnett square with 16 boxes, the maximum number of different phenotypes available are:

A. 8

B. 4

C. 2

D. 16

Answer: B

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72. A human male produces sperms with the genotypes AB, Ab, aB, and ab pertaining to two diallelic characters in equal proportions. What is the corresponding genotype of this person?

A. AaBb

B. AaBB

C. AABb

D. AABB

Answer: B

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73. In pea plants, yellow seeds are dominant to green. If a heterozygous yellow seeds plant is crossed wit a green seeded plant, what ratio of yellow and green seeded plants would you expect in F_1 generation :-

A. 50:50

B. 9:1

C. 1:3

D. 3:1

Answer: A

74. 1:2:1 phenotypic and genotypic ratio is found in

A. Complementary genes

B. Blending inheritance

C. multiple alleles

D. pseudoalleles

Answer: B

75. Which of the following is a test cross?

A. Tt x tt

B. TT x tT

C. Tt x Tt

D. tt x tt

Answer: A

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76. Genotypic ratio of a monohybrid cross is

A. 1:2:1

B. 3:1

C. 9:3:3:1

D. 1:1:1

Answer: A

77. A pure tall and a pure dwarf plant were crossed to produce offsprings. Offsprings were self crossed, then find out the ratio between true breeding tall to true breeding dwarf?

A. 1:1

B. 3:1

C. 2:1

D. 1:2:1

Answer: A

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78. If Aabb x aaBB, then phenotypic ratio of its progeny (F_2 -generation) will be

A. 9:3:3:1

B. 1:2:1

C. 1:1:1:1

D. 4:1

Answer: A

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79. Rrrr progeny : Red (dominant) flowered heteroxygous crossed with white flower

A. $350 \rightarrow red : 250 \rightarrow white$

B. $450 \rightarrow red : 250 \rightarrow white$

C. $380 \rightarrow red : 320 \rightarrow white$

D. None of the above

Answer: A

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80. A tall pea plant was grown in nutrient deficient soil and remained dwarf. When it is crossed with dwarf plant then:

A. All hybrid plants are dwarf

B. All hybrid plants are tall

C. 50% tall and 50% dwarf

D. 75% tall and 25% dwarf

Answer: B

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81. Sometimes, there are more than two alleles for a given chromosome locus, in this case, a trait is controlled by

A. Codominance

B. pseudodominance

C. Incomplete dominance

D. Multiple alleles

Answer: D

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82. Genes when present in homozygous condition results in non-viable progeny, the factor responsible for such conditions are

A. Polygenes

B. Linked genes

C. lethal genes

D. Epistatic genes

Answer: C

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83. In order to find out the different types of gametes produced by a pea plant having the

genotype AaBb. It should be crossed to a plant with the genotype

A. aaBB

B. AaBb

C. AABB

D. aabb

Answer: D

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84. The process that involves intergenic supperssion or the masking effect which on gene locus has upon the expression of another is called:

A. Epistasis

B. Dominance

C. Incomplete dominance

D. Recessive

Answer: A

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