GENETICS

1. Mendel is considered to be lucky to discover the laws of inheritance because
1. He meticulously analyzed his data statistically
2. He maintained pedigree records of various generations he studied for comparison
3.The characters he chose for his study did not show incomplete dominance
4. None of the above

2. What is an offspring of two homozygous parents differing from one another by alleles at only one gene locus called?
1.Dihybrid 2. Monohybrid 3. Trihybrid 4. Back cross

3. In which of the following do you see classic example of blending inheritance
1. Pea plant 2. 4 'O'clock plant 3.Drosophila 4. Fruit fly

4. Which Mendelian laws applied when factors for each character segregate and pass on to each gamete uncontaminated?
1. Law of purity of gametes 2. Law of Independent Assortment
3. Both 1 and 2 4. None of the above

5. If a tall plant is crossed with a dwarf one, about one half of the offspring's produced are tall and the other half dwarf. Give the genotypes of parents.
1. Tt x tt 2. Tt x Tt 3. TT x tt 4. None of the above

6. In cross TT x tt what percent of offspring will have same genotype as their parents in F1 generation?
1. 0 % 2. 25% 3. 50% 4. 100%

7. If a person's RBC is not coated with specific glycoprotein then the blood group is
1. A 2. B 3. AB 4. O

8. Which of these blood transfusions can be made without risk
1. A to B 2. AB to O 3. A to O 4. B to AB

9. The genotype of blood group AB is
1. Homozygous 2. Heterozygous 3. Codominant 4. Incomplete dominance

10. Sex linked inheritance was discovered for the first time in
1. Rhesus monkey 2. Drosophila melanogaster 3.Guinea pigs 4. Colorblind in Man

11. What is the cause for a child born with an extra chromosome in each of its cells
1. Segregation 2. Non-disjunction 3. Crossing over 4. Hybridization

12. In a defective hemoglobin of sickle cell anemia, the 6th amino acid in β chain is
1. glutamic acid 2. Valine 3. Histamine 4. Lysine

13. Hemophilia is rare in women because
1. It is a recessive autosomal disorder 2. Women ought to be homozygous
3. They have only one X chromosome 4. They are more recessive to this

14. A boy develops beard at maturity. This is a
1. Sex-linked inheritance 2. Sex-limited inheritance 3. Sex influence inheritance 4. All

15. Gynecomastia is the symptom of
1. Down's syndrome 2. Klinefelter syndrome 3. Turner's syndrome 4. Cri-du-chat

16. Genetics of blood groups in human illustrates
1. multiple allelism and co-dominance 2. Multiple allelism and pseudo dominance
3. Incomplete dominance and multiple allelism 4. Pseudo dominance and co-dominance

17. The gene for haemophilia is located on 'x' chromosome. Hence it is normally impossible for a
1. Haemophilic father to pass gene to his daughter 2. Carrier mother to pass gene to her daughter
3.Carrier mother to pass the gene to her son 4. haemophilic father to pass the gene to his son

18. If a boy's father has haemophilia and his mother has one gene for haemophilia. What is the chance that the boy will inherit the disease?
    1. 0% 2. 50% 3. 75% 4. 100%
19. A man heterozygous for sickle cell anemia will show in his blood
    1. Some normal and some sickle shaped RBC 2. All RBC show sickle like shapes
    3. Increase in RBC and few are sickle shaped RBC 4. None of these
20. Webbed neck, broad chest, low mental capacity and less of female hormone is a characteristic of
    1. Turner's syndrome 2. Down's syndrome 3. Klinefelter syndrome 4. Cri-du-chat syndrom
21. Red green colorblind is called
    1. Daltonism 2. Monochromatism 3. Dichromatism 4. All these
22. 'Y' linked genes also called
    1. Male genes 2. 'y'linked inheritance 3. Holandric genes 4. All these
23. Marriage of one of should be avoided
    1. Rh^+ man and Rh^- woman 2. Rh^- man and Rh^- woman
    3. Rh^+ man and Rh^- woman 4. Rh^- man and Rh^- woman
24. If a man of blood gp 'A' marries a woman of blood group 'B' their children can be of the blood gp
    1. A or B only 2. AB only 3. A, B and AB only 4. A, B, AB and O
25. What possible blood gp would you expect of children born to parents with blood group AB and O.
    1. AB and O 2. O 3. AB 4. A and B
26. Match the following

m. monohybrid cross	a. T and t
n. test cross	b. TT x tt
o. allelomorphs	c. Tt
p. heterozygous tall	d. Tt x tt
	e. tt

    1. m-b, n-d, o-a, p-c 2. m-a, n-b, o-c, p-d
    3. m-b, n-e, o-a, p-c 4. m-b, n-d, o-e, p-c
27. Agglutinin is also known as
    1. Antibody 2. Antigen 3. Clumping 4. None of these
28. The different possible phenotypes for ABO and Rh blood groups are
    1. 5 2. 8 3. 6 4. 10
29. Which of the following is the correct combinations
    1. Sickle cell anemia – Bleeders disease 2. Haemophilia – Recessive 'x' linked
    3. Colorblindness – 'y'linked 4. Hypertrichosis – 'x'linked
30. An individual which is always true breeding is
    1. Dominant 2. Recessive 3. Hybrid 4. None of these
31. Assume that in dog, B for black fur and b for brown fur. If a heterozygous black dog mates with a homozygous brown dog. What percent of their offspring will have black fur?
    1. 25% 2. 50% 3. 75% 4.100%
32. From a single ear of corn, a farmer planted 200 kernels which produced 140 tall and 40 dwarf plants. The genotype of these offsprings are most likely
    1. TT, Tt & tt 2. TT & tt 3. TT & Tt 4. tt & tt
33. If an organism with the genotype Ww is crossed with a Ww organism, what would be the proportion of offsprings that would be heterozygous?
    1. 25% 2. 50% 3. 75% 4.100%

34. In humans brown eyes (B) are dominant over blue eyes (b). A homozygous brown eyed man marries a blue eyed woman. The possible eye colours of their children is
1. All brown 2. All blue 3. Half brown 4. Brown and blue
35. In a pea plant long stem trait (L) is dominant and the short stem trait(l) is recessive. Two pea plants were crossed producing seeds that yeild 165 long and 54 short . The genotype of parent plants is
1. Ll & LL 2. Ll & Ll 3. Ll & ll 4. LL & ll
36. In guinea pigs black fur (B) and rough fur(R)is dominant over white fur (b) and smooth fur (r). A cross between two hybrid guinea pigs for both traits produces some offsprings rough, black fur and some have smooth, black fur. The genotype of these offsprings illustrate the genetic concept of
1. intermediate inheritance 2. Multiple alleles
3. independent assortment 4. Codominance
37. When two heterozygous tall plants are crossed, some short plants appear in the offspring. The appearance of these short plants illustrates
1. segregation and recombination 2. Intermediate inheritance
3. crossing over and differentiation 4. Codominant inheritance
38. Alternative forms of genes for a particular trait is called
1. homologous chromosome 2. Allele 3. Genotypes 4. Linked genes
39. When an individual has both I^A and I^B , expressed with AB blood gp. Is an example of
1. codominance 2. Dihybrid 3. Pleiotrophy 4. Incomplete dominance
40. When two grey bodied fruit flies are mated and results in 86 grey males, 81 yellow males and 165 grey females. The allele for yellow body is
1. Sex linked and dominant 2. Not sex linked and dominant
3. sex linked and recessive 4. Not sex linked and recessive
41. According to Mendel's law of segregation
1. 50% gamete will get a dominant allele 2. allele pairs separate in gamete formation
3. gene pairs segregate independently of other genes in the gamete formation
4. the laws of probability determine the gamete formation
42. A 1: 1 phenotypic ratio in a test cross indicates that
1. the alleles are dominant 2. one parent must have been homozygous recessive
3. the dominant parent is a heterozygous 4. the alleles segregated independently
43. Two true breeding red, axial flowered and white, terminal flowered peas are crossed. All F_1 individuals are red, terminal flowers. If 100 F_2 offsprings were counted, how many of them would you expect to have red, axial flowers?
1. 6 2. 25 3. 19 4. 56
44. A wild type is
1. a phenotype most commonly found in nature 2. the dominant allele
3. Your pet animal 4. cultivated in garden
45. Mendel published the results of his experiments in
1. 1822 2. 1900 3. 1866 4. 1947
46. How many different kinds of eggs are produced by the F_1 offsprings from a cross between pure yellow peas and pure green peas?
1. one 2. Two 3. Four 4. Eight
47. In Mendel's experiment there are two alleles of the gene that causes pea shape R for round and r for wrinkled and two alleles for height T for tall and t for short. How many different kinds of eggs are produced by a plant with wrinkled peas?
1. One 2. Two 3. Four 4. Eight

48. When a pure tall (TT) plant with round (RR) pea is crossed with a pure short(tt) plant with wrinkled (rr) pea, a F_1 generation is produced. When these F_1 plants self pollinate, how many genotypes are produced in the F_2 generation?
    1. 4 2. 6 3. 9 4. 16
49. In watermelon the allele for green colour(G) is dominant over the allele for stripped colour (g) and the allele for short shape (S) is dominant over the allele for long shape (s). When long, stripped watermelons are crossed with heterozygous for both traits, what proportion of the offspring are stripped and short?
    1. Zero 2. 25% 3. 50% 4. 75%
50. How many different kinds of gametes can an organism of genotype AaBBCc produce?
    1. 3 2. 4 3. 9 4. 16
51. Mendelian recombinations are due to
    1. linkage 2. Modification 3. Independent assortment of genes 4. Mutation
52. Mendel's law of segregation is based upon the F_2 ratio of
    1. 1 : 2 2. 3 : 1 3. 9 : 3 : 3: 1 4. 1 : 1
53. A 1 : 1 F_2 phenotypic ratio is a
    1. monohybrid ratio 2. Dihybrid ratio 3. test cross ratio 4. Back cross ratio
54. 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
    1. incomplete dominance 2. Codominance
    3. epistasis 4. Complete dominance
55. A male human is heterozygous for autosomal genes A and B, he is also hemizygous for colour blind Gene c. What proportion of sperms will carry abc alleles.
    1. 1/8 2. 1/32 3. 1/4 4. 1/16
56. In order to find out the different types of gametes produced by a pea plant gaving genotype AaBb it should be crossed to a plant with the genotype
    1. AABB 2. AaBb 3. aabb 4. Aabb
57. Tallness (T) is dominant over dwarfness (tt) while red folwer colour (R) is dominant over white flower colour (rr). A plant with genotype TtRr is crossed with ttrr. Percentage of progeny having tall plant with pink flowers is
    1. 0% 2. 100% 3. 50% 4. 25%
58. In a dihybrid cross PPQQ X ppqq, in F_2 progeny PPQQ, PPQq, PpQq and ppqq are in the ratio of
    1. 9:3:3:1 2. 1:1:1:1 3. 1:4:2:1 4. 1:2:4:1
59. If a boy's father has haemophilia and his mother has a one gene for haemophilia. What is the chance that the boy will inherit the disease?
    1. 0 % 2. 50 % 3. 75 % 4. 100 %
60. In a cross 150 inflatted green and 16 constricted yellow are obtained. Genotype of parents is
    1. IIGG X iigg 2. IiGg X iigg 3. IiGg X IiGg 4. Iigg X iiGG
61. Brown eye colour is dominant over blue eye colour. A blue eyed man whose mother was brown eyed marries a brown eyed women whose father was blue eyed. The children shall be
    1. All blue eyed 2. All brown eyed
    3. Brown eyed and blue eyed 3:1 4. Blue eyed and brown eyed 1:1
62. A colour blind man marries a normal women whose father was colour blind. What percentage of children is expected to be with colour blind gene ?
    1. 25% 2. 50% 3. 75% 4. 100%

63. Genes A and B are both required in recessive state for curly hair. A straight hair couple has all children with curly hair. The probable genotype of the couple is
1. AABB X aabb 2. AaBb X AAbb
3. AaBb X AaBb 4. aabb X aabb
64. The ratio of parental and recombinant phenotypes in dihybrid cross would be
1. 9:3:3:1 2. 9:7 3. 10:6 4. 8:8
65. MmNn individual produces 4 million gametes. How many of them carry both the recessive alleles ?
1. 3 million 2. 2 million 3. 1 million 4. 0.5 million
66. How many types of gametes are produced by an organism with genotype XxYYZz?
1. Two 2. One 3. Four 4. Eight
67. Multiple alleles are present
1. At different loci in the same chromosome 2. In different chromosomes
3. At the same locus in one type of chromosome of an individual in a population
4. At the same locus in one type of chromosome of different individuals of a population
68. 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
1. Aabb & Aabb 2. Aabb & aaBb 3. Aabb & aaBB 4. aaBB & aaBb
69. How many types of gametes can be formed by individual with genotype AaBbCcDDEe?
1. 32 2. *16* 3. 8 4. 12
70. What will be the result of a cross between TtGG and ttGG?
1. *TtGG-1, ttGG-1* 2. TtGg-3, ttgg-1 3. TtGg-2, TTGG-1, ttGG-1
4. TtGG-9, TTGG-3, TtGg-3, ttgg-1
71. Genes P and Q are necessary for normal hearing. A deaf man marries a deaf woman and all their children had normal hearing. The genotype of the parents are
1. ppqq x ppQq 2. PPqq x PPqq 3. ppQQ x ppQq 4. PPqq x ppQQ
72. An allele is the
1. total number of genes for a trait 2. Alternate trait of gene
3. total number of genes on a chromosome 4. all of these
73. Some people experience PTC paper on tongue as bitter others as tasteless. This character is hereditary in nature. Suppose T stands for dominant gene, bitterness and t recessive gene. The genetic makeup of a person who cannot taste is
1. TT 2. Tt 3. tt 4. None of these
74. A hybrid black coated guinea pig produces two million sperm cells. What number of its sperm cells contain the recessive gene for white colour?
1. 1.0million 2. 2.0 million 3. 1.5 million 4. Zero million
75. The geometrical device which helps in visualising the possible combinations of male and female gametes is called
1. Bateson square 2. Mendel square 3. Punnet square 4. Pi square
76. Consider the cross AaBbCcDdEe x aaBbccDdee. What proportion of the progeny will phenotypically resemble the first parent?
1. 9 / 128 2. 18 / 128 3. 27 /128 4. 55 / 64
77. The probability of getting abc phenotype from a cross AaBbCc x aaBbcc is
1. ½ 2. ¼ 3. 1/8 4. *1/16*
78. In the F_2 progeny of a dihybrid cross the expected genotypic proportion of individuals homozygous for both the dominant character will be
1. 1/16 2. 3/16 3. 9/16 4. 12/16

79. A test cross of AaBbCc produces how many phenotypes?
1. 4 2. 8 3. 12 4. 16
80. An individual heterozygous for two alleles produces one million sperms. How many of them will have both recessive alleles?
1. 0.25million 2. 1 million 3. 2 million 4. 0.50 million
81. In a dihybrid cross out of 16 plants obtained, the number of genotypes shall be
1. 4 2. 9 3. 16 4. 12
82. Mendel found that the F_1 always resembled
1. Either one of the parent 2. Both the parents
3. None of the parents 4. All of these
83. The inheritance of flower colour in Antirrhinum is an example for
1. segregation 2. Dominance 3. Incomplete dominance 4. Recessive
84. In a monohybrid cross when F_1 is crossed with homozygous dominant parent then which type of offsprings will obtain
1. dominant : recessive 3 : 1 2. Only recessive
3. dominanr : recessive 1 : 1 4. No recessive
85. In 1900 AD three biologists rediscovered Mendelian principles. They are
1. de vries, Correns and Tschermak 2. Sutton, Morgan and Bridges
3. Avery, McCleod and McCarty 4. Bateson, Punnet and Bridges
86. The term genotype was coined by
1. H J Muller 2. T Boveri 3. W S Sutton 4. W L Johanssen
87. How many pairs of contrasting characters in pea pod were chosen by Mendel?
1. 2 2. 14 3. 4 4. 7
88. Which of the statement is correct?
1. Each back cross is a test cross 2. Each test cross is a back cross
3. Reciprocal cross is a test cross 4. All of these
89. If a cross is made between AA and aa, the nature of F_1 progeny will be
1. genotypically AA, phenotypically a 2. Genotypically Aa, phenotypically a
3. genotypically Aa, phenotypically A 4. Genotypically aa, phenotypically A
90. A human male produces spems with the geenotypes AB, Ab, aB and ab pertaining to two diallelic characters in equal proportions. What is the corresponding genotype of this person?
1. AaBb 2. AaBB 3. AABb 4. AABB
91. A plant of F_1 generation has genotypesAABbCC, on selfing of this plant, the phenotypic ration on F_2 generation will be
1. 3 : 1 2. 1 : 1 3. 9 : 3 : 3 :1 4. 27 : 9 : 9 : 9 : 3 : 3 : 3 : 1
92. A tall plant was grown in nutrient deficient soil and remained dwarf, when it is crossed with dwarf plant then
1. all hybrid plants are dwarf 2. All hybrid plants are tall
3. 25% tall and 75% dwarf 4. 75% tall and 25% dwarf
93. 1 : 2 : 1 phenotypic and genotypic ratio is found in
1. complementary genes 2. Blending inheritance
3. multiple alleles 4. Pseudoalleles
94. A gamete normally contains
1. many alleles of a gene 2. All alleles of a gene
3. two alleles of a gene 4. One allele of a gene