



Roll No. of Candidate

Name of Candidate

## STARS ENTRY TEST SYSTEM-2021 (PMC -NMDCAT)

Test Code: B-5 (VARIATIONS &amp; GENETICS)

**(BIOLOGY)**

Time Allowed: 50 min

- A person was married to his cousin and both are heterozygous for sickle cell anemia. Among their four kids, what will be proportion of affected homozygotes?**  
A. 50%  
B. 25%  
C. 75%  
D. 100%
- Chances for a man to be affected by hemophilia C is:**  
A. Greater than woman  
B. Equal to woman  
C. Lesser than woman  
D. Not predictable
- A woman can suffer from haemophilia A if she is:**  
A. Homozygous dominant  
B. Heterozygous  
C. Homozygous recessive  
D. Hemizygous recessive
- Alleles in an individual for a particular trait is called its:**  
A. Phenotype  
B. Genotype  
C. Gene pool  
D. Karyotype
- Keeping in view the Mendel's law of Segregation, if tall plants were crossed with short heighted plants, then which of the following best describe the F<sub>1</sub> Progeny?**  
A. Homozygous and tall heighted  
B. Homozygous and short heighted  
C. Heterozygous and tall heighted  
D. Heterozygous and short heighted
- An allele is recessive if it is expressed in:**  
A. F<sub>1</sub> generation  
B. Homozygous combination & Heterozygous combination  
C. Homozygous combination  
D. Heterozygous combination
- When an allele fails to express itself in the presence of another the former is said to be:**  
A. Epistatic  
B. Dominant  
C. Recessive  
D. Hypostatic
- Which of the following organism was selected by Mendel to explain laws of inheritance?**  
A. *Homo sapiens*  
B. *Pisum sativum*  
C. *Antirrhinum*  
D. 4 O' clock
- When a tall pea plant (TT) is crossed with a dwarf plant (tt), what will be the F<sub>2</sub> generation?**  
A. All tall plants  
B. All dwarf plants  
C. 3 tall 1 dwarf  
D. 3 dwarf 1 tall
- Which of the following is wrong?**  
A. Y chromosome contain SRY gene  
B. X linked genes are inherited as zig zag  
C. Y linked gene like haemophilia passes from father to son  
D. X linked recessive genes are carried by females
- Which of the following human diseases provides an example of sex-linked inheritance?**  
A. Haemophilia  
B. Night blindness  
C. Mongolism  
D. Beri-beri
- 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**  
A. 25%  
B. 50%  
C. 75%  
D. 100%
- Haemophilia is caused by a single**  
A. Dominant gene in woman  
B. Dominant gene in man  
C. Recessive gene in man  
D. Recessive gene in woman

14. Female rarely experience the physiologic defect of haemophilia because they do so only when they are
  - A. Heterozygous for the defect
  - B. Homozygous for the defect
  - C. Carrier for the defect
  - D. Wives of haemophilic husbands
15. Mendel's dihybrid cross ratio is:
  - A. 3:1
  - B. 9:3:3:1
  - C. 1:1:1:3
  - D. 3:1:1:2
16. The number of linkage groups in human:
  - A. 23
  - B. 46
  - C. 92
  - D. 96
17. All of the following are non-allelic x-linked traits except:
  - A. Haemophilia A
  - B. Haemophilia B
  - C. Haemophilia C
  - D. tfm syndrome
18. Percentage of crossing over is more when:
  - A. Genes are located in a different cell
  - B. Genes are not linked
  - C. Linked genes are located close to each other
  - D. Linked genes are located far apart from each other
19. Alleles of different genes that are on the same chromosome can occasionally be separated by a phenomenon called
  - A. Crossing over
  - B. Continuous variation
  - C. Epistasis
  - D. Pleiotropy
20. Which of the following characteristics of pea plants was not used by Mendel in his experiments?
  - A. Seed colour
  - B. Seed shape
  - C. Pod length
  - D. Flower position
21. Mendel took \_\_\_\_\_ contrasting characteristics of pea plants.
  - A. Eight
  - B. Seven
  - C. Six
  - D. Five
22. The alternate form of a gene is
  - A. Alternate type
  - B. Recessive character
  - C. Dominant character
  - D. Allele
23. In a family of four including a normal mother, a normal father, a haemophilic son and a normal son; who do you think which of the following has the defective X gene other than the affected son?
  - A. The mother
  - B. The normal son
  - C. The father
  - D. The affected son only
24. Y linked inheritance is \_\_\_\_\_ inheritance.
  - A. Criss cross
  - B. Straight
  - C. Loop
  - D. Jumping
25. The daughter born to haemophilic father and homozygous normal mother could be
  - A. Normal
  - B. Carrier
  - C. Haemophilic
  - D. None
26. Gene for eye colour in male drosophila is present on
  - A. Autosome
  - B. X chromosome
  - C. Sex Chromosome
  - D. Y chromosome
27. If you cross a red eyed male fruit fly with white eyed female fruit fly, progeny will be
  - A. All male will be Red Eyed
  - B. All female will be white eyed
  - C. Both male and female will be red eyed
  - D. Only male will be white eyed
28. Male in fruit fly will be white eyed if
  - A. Homozygote
  - B. Hemizygote
  - C. Heterozygote
  - D. None
29. Which haemophilia is autosomal
  - A. B
  - B. A
  - C. D
  - D. C
30. Haemophilia B is due to deficiency of factor
  - A. VIII
  - B. X
  - C. XI
  - D. IX
31. The law of segregation gives genotypic ratio in F<sub>2</sub> as:
  - A. 2:1
  - B. 3:1
  - C. 4:1
  - D. 1:2:1
32. What is the probability that the son of a haemophilic father would be haemophilic?
  - A. 0
  - B. 1/2
  - C. 1/4
  - D. 1



33. Eye colour of Mutant Drosophila is  
 A. Blue  
 B. Red  
 C. Green  
 D. White
34. An exception to Mendel's law is  
 A. Independent assortment  
 B. Linkage  
 C. Dominance  
 D. Purity of gametes
35. A pea plant that is heterozygous for two traits is called a  
 A. Hybrid.  
 B. Dualheterotype.  
 C. Dihybrid.  
 D. Dualhybrid.
36. As a result of cross-fertilization of true breeding pea plant having purple-colored flowers with that of white colored flowers, the offspring will have flower with:  
 A.  $\frac{1}{4}$  purple and  $\frac{3}{4}$  white  
 B.  $\frac{1}{4}$  white and  $\frac{3}{4}$  purple  
 C. All white  
 D. All purple
37. Mating between two such parents who differ in two traits only is called  
 A. Self Cross  
 B. Monohybrid Cross  
 C. Pure breeding  
 D. Dihybrid Cross
38. Seed shape is \_\_\_\_\_.  
 A. Genotype  
 B. Trait  
 C. Phenotype  
 D. Round
39. How many different types of gametes will form if genotype is AaBb  
 A. 1  
 B. 3  
 C. 2  
 D. 4
40. Each gamete carry  
 A. Only recessive-allele  
 B. Only dominant-allele  
 C. Only one of the alleles  
 D. All of-these
41. A true breeding variety upon self-fertilization always produces -  
 A. Only recessive offspring  
 B. Both with ratio 3:1  
 C. Only Dominant offspring  
 D. Offspring identical to parents
42. Mutant white in drosophila was discovered by  
 A. Carl Carrells  
 B. T. H. Morgan  
 C. Calvin Bridges  
 D. Nilsson Ellie
43. The number of types of gametes produced by a homozygous individual is  
 A. 2  
 B. 1  
 C. 4  
 D. Several
44. During his experiments, Mendel called genes by the term  
 A. Trait  
 B. Character  
 C. Quality  
 D. Factor
45. If both alleles for one trait are same, then individual is called as  
 A. Hemizygote  
 B. Homozygote  
 C. Heterozygote  
 D. Heterozygous
46. Two coexisting alleles separate during gamete formation is explanation of Law of  
 A. Mendel  
 B. Punnet  
 C. Independent Assortment  
 D. Segregation
47. Whose inheritance is not in zig-zag fashion  
 A. X linked gene  
 B. X linked recessive gene  
 C. X Linked dominant gene  
 D. Y linked gene
48. Sex linked traits include  
 A. Colour blindness  
 B. Vit. D resistant rickets  
 C. Haemophilia  
 D. All of these
49. In Mendel's Monohybrid cross, how much true breed round are produced in F2 generation  
 A.  $\frac{1}{4}$   
 B.  $\frac{2}{4}$   
 C.  $\frac{3}{4}$   
 D.  $\frac{0}{4}$
50. All are part of linkage group 11 except  
 A. Sickle cell anemia  
 B. Leukaemia  
 C. Albinism  
 D. Haemophilia

1	(A)	(B)	(C)	(D)
2	(A)	(B)	(C)	(D)
3	(A)	(B)	(C)	(D)
4	(A)	(B)	(C)	(D)
5	(A)	(B)	(C)	(D)
6	(A)	(B)	(C)	(D)
7	(A)	(B)	(C)	(D)
8	(A)	(B)	(C)	(D)
9	(A)	(B)	(C)	(D)
10	(A)	(B)	(C)	(D)
11	(A)	(B)	(C)	(D)
12	(A)	(B)	(C)	(D)
13	(A)	(B)	(C)	(D)
14	(A)	(B)	(C)	(D)
15	(A)	(B)	(C)	(D)
16	(A)	(B)	(C)	(D)
17	(A)	(B)	(C)	(D)
18	(A)	(B)	(C)	(D)
19	(A)	(B)	(C)	(D)
20	(A)	(B)	(C)	(D)

21	(A)	(B)	(C)	(D)
22	(A)	(B)	(C)	(D)
23	(A)	(B)	(C)	(D)
24	(A)	(B)	(C)	(D)
25	(A)	(B)	(C)	(D)
26	(A)	(B)	(C)	(D)
27	(A)	(B)	(C)	(D)
28	(A)	(B)	(C)	(D)
29	(A)	(B)	(C)	(D)
30	(A)	(B)	(C)	(D)
31	(A)	(B)	(C)	(D)
32	(A)	(B)	(C)	(D)
33	(A)	(B)	(C)	(D)
34	(A)	(B)	(C)	(D)
35	(A)	(B)	(C)	(D)
36	(A)	(B)	(C)	(D)
37	(A)	(B)	(C)	(D)
38	(A)	(B)	(C)	(D)
39	(A)	(B)	(C)	(D)
40	(A)	(B)	(C)	(D)

41	(A)	(B)	(C)	(D)
42	(A)	(B)	(C)	(D)
43	(A)	(B)	(C)	(D)
44	(A)	(B)	(C)	(D)
45	(A)	(B)	(C)	(D)
46	(A)	(B)	(C)	(D)
47	(A)	(B)	(C)	(D)
48	(A)	(B)	(C)	(D)
49	(A)	(B)	(C)	(D)
50	(A)	(B)	(C)	(D)
51	(A)	(B)	(C)	(D)
52	(A)	(B)	(C)	(D)
53	(A)	(B)	(C)	(D)
54	(A)	(B)	(C)	(D)
55	(A)	(B)	(C)	(D)
56	(A)	(B)	(C)	(D)
57	(A)	(B)	(C)	(D)
58	(A)	(B)	(C)	(D)
59	(A)	(B)	(C)	(D)
60	(A)	(B)	(C)	(D)

- U
- F
- E
- D
- M
- P
- T
- A