

**KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES  
UNIVERSITY, BIDAR**

**Post Graduate Entrance Examinations : 2021-22**

**PhD in Animal Genetic & Breeding**

**Subject Code: P08**

**HALL TICKET NO : ... ..**

**Date: 10<sup>th</sup> May 2022**

**Max Marks : 100**

**Duration : 2 Hrs.**

**Choose the correct answer from the four options given under each question and fill the relevant circle with black ball point pen in the OMR Sheet.**

**Note: 1) Do not use pencil for marking on the OMR Sheet.**

**2) Marking on the OMR sheet for more than one option for a question will be rendered invalid.**

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1. Which one of the following is not a Bioinformatics software?

- |          |            |
|----------|------------|
| a) BLAST | b) SEQUEST |
| c) SPSS  | d) DNASTAR |

2. Highest per cent of heterosis is recorded in

- |                   |                            |
|-------------------|----------------------------|
| a) Growth traits  | b) Fitness traits          |
| c) Carcass traits | d) Highly heritable traits |

3. DNA will be cleaved by Class II restriction endonucleases cleave

- |  |                                |
|--|--------------------------------|
| a) At the restriction recognition site | b) Before the recognition site |
| c) After the recognition site          | d) No specific region          |

4. The mating of individuals within the same breed, which do not have any relationship for at least 4-6 generations is known as

- |                 |                   |
|-----------------|-------------------|
| a) Top crossing | b) In crossing    |
| c) Out crossing | d) Top incrossing |

5. Darkly stained G band region is

- |            |            |
|------------|------------|
| a) AG rich | b) GC rich |
| c) TC rich | d) AT rich |

6. Multiple alleles occupy the
- a) Same loci and affect different traits
  - b) Same loci and affect the same trait
  - c) Different loci and different trait
  - d) Different loci and affect the same trait
7. The covariance between the breeding value of a parent and its offspring's phenotype equals to
- a)  $V_A/4$
  - b)  $V_A$
  - c)  $V_A/2$
  - d)  $V_E$
8. Diallel crossing is practiced to exploit
- a) Prepotency
  - b) Breeding ability
  - c) Reproducing ability
  - d) Combining ability
9. Operon includes
- a) Related genes, operator and promoter
  - b) Related genes and promoter
  - c) Related genes and operator
  - d) Promoter and regulator
10. The first person/s to link the enzyme deficiency with genetic defect was/were
- a) Beadle and Tatum
  - b) Sir Francis Garrod
  - c) F. Griffith
  - d) Avery and others
11. General combining ability indicates
- a) Maternal effects
  - b) Additive gene effects
  - c) Non additive gene effects
  - d) Non genetic effects
12. Booroola gene in sheep is associated with
- a) Wool production
  - b) Mothering ability
  - c) Fecundity
  - d) Meat production
13. The most efficient method of selection is
- a) Tandem method
  - b) Independent culling level
  - c) Individual selection
  - d) Selection index method

14. The strongest force changing gene frequency is
- a) Migration
  - b) Mutation
  - c) Selection
  - d) Genetic drift
15. Quantitative trait is a product of
- a) Action of large number of gene pairs
  - b) Large number of gene pairs in combination with influence of environment
  - c) Influence of environment
  - d) Action of major genes
16. The ratio of response divided by selection differential in selection experiments is termed as
- a) Realized heritability
  - b) Heritability in broad sense
  - c) Heritability in narrow sense
  - d) Regression
17. One of the principles of selection is that
- a) No new gene combinations are produced
  - b) It does not create new genes
  - c) Selection is better in herds with uniform performance
  - d) Variation in pure lines is due to heredity
18. The probabilities of rare events could be computed using
- a) Normal distribution
  - b) Binomial distribution
  - c) Pascal's distribution
  - d) Poisson distribution
19. The F<sub>2</sub> dihybrid phenotypic ratio in case of Duplicate dominant epistasis is
- a) 15:1
  - b) 9:7
  - c) 13:3
  - d) 9:6:1
20. Phytohaemagglutinin used in lymphocyte culture acts as
- a) Nutrient
  - b) Hypotonic agent
  - c) Activator
  - d) Mitogen
21. *In-vitro* conservation of germ plasm implies
- a) Cryopreservation of gametes
  - b) Maintaining of optimum number of animals in small herds
  - c) Cryopreservation of bone cells
  - d) Stem cell manipulation

22. Exception to Mendelian law of inheritance is
- a) Extracellular inheritance
  - b) Dominance
  - c) Linkage
  - d) Epistasis
23. Heterozygotes are superior to either of the homozygote parents in case of
- a) Dominance
  - b) Overdominance
  - c) Codominance
  - d) Additive gene action
24. To obtain maximum heterosis the parental animals should be from
- a) Two breeds of same level of production
  - b) Two breeds of low production
  - c) Two breeds of different levels of production
  - d) Two breeds of high production
25. One of the causes of genetic correlation is
- a) Pleiotropy
  - b) Multiple alleles
  - c) Segregation of genes
  - d) Natural selection
26. The measure of dispersion free from unit and scale of measurement is
- a) Range
  - b) Variance
  - c) Standard deviation
  - d) Coefficient of variation
27. The chromosomal configuration of a domestic ram is
- a) 54 XX
  - b) 54 XY
  - c) 60 XY
  - d) 60 XX
28. The method of breeding when an outstanding sire is identified is
- a) Line breeding
  - b) Grading up
  - c) Cross breeding
  - d) Outbreeding
29. Superiority of selected individuals over the population from which the individuals were selected is known as
- a) Selection differential
  - b) Selection intensity
  - c) Selection index
  - d) Selection response

30. The White Leghorns
- a) Lack color producing genes
  - b) Have both color producing and inhibiting genes
  - c) Possess color inhibiting genes
  - d) Lack both color producing and inhibiting genes
31. Southern blotting is a
- a) RNA hybridization technique
  - b) DNA separation technique
  - c) DNA hybridization technique
  - d) Protein hybridization technique
32. Species hybridization is the most extensive form of
- a) Out breeding
  - b) Outcrossing
  - c) Inbreeding
  - d) Crossbreeding
33. *Taq* DNA polymerase is isolated from
- a) Virus
  - b) Bacteria
  - c) Yeast
  - d) Fungus
34. Crossing over at one point of chromosome decreases the probability of its occurrence elsewhere on the same chromosome. This phenomenon is known as
- a) Double cross over
  - b) Chiasma frequency
  - c) Interference
  - d) Coincidence
35. Which of the following statements is correct with respect to the relation between heritability and repeatability
- a) Heritability is always higher than repeatability
  - b) Repeatability is the upper limit of heritability
  - c) Repeatability is zero when heritability is one
  - d) Heritability is the upper limit of repeatability
36. Which of the following is the dispersive process of change of gene frequency
- a) Migration
  - b) Mutation
  - c) Selection
  - d) Genetic drift
37. Holandric gene is transmitted from
- a) Male parent to male offspring
  - b) Male parent to female offspring
  - c) Male parent to both male and female offspring
  - d) Female parent to male offspring

38. The heritability of reproductive traits is
- a) Very high
  - b) Very low
  - c) Always zero
  - d) Moderate
39. Transcription takes place in
- a) Cytoplasm
  - b) Both nucleus and cytoplasm
  - c) Nucleus
  - d) Ribosomes
40. In an equilibrium population, if the gene frequencies of two alleles among the parents are  $p$  and  $q$ , then the genotype frequency of heterozygotes is
- a)  $pq$
  - b)  $q^2$
  - c)  $p^2$
  - d)  $2pq$
41. In RAPD technique
- a) Only one primer is used
  - b) Two primers are used
  - c) Only reverse primers are used
  - d) Multiple primers are used
42. Dolly is
- a) A transgenic animal
  - b) A recombinant animal
  - c) Produced from somatic cell
  - d) Fertilized ovum
43. Gene transfer in bacteria mediated by naked DNA is termed as
- a) Transduction
  - b) Transformation
  - c) Transcription
  - d) Translation
44. Rejecting the null hypothesis when it is true is
- a) Type II error
  - b) Correct decision
  - c) Type I error
  - d) No error
45. Robertsonian translocation in animals usually involves chromosome numbers
- a) 1 & 14
  - b) 1 & 27
  - c) 1 & 28
  - d) 1 & 29
46. Khaki Campbell is a breed of
- a) Poultry
  - b) Duck
  - c) Swine
  - d) Sheep

47. AFLP is a
- a) PCR based method
  - b) Method that detects the presence or absence of a fragment
  - c) Method to detect polymorphism in the DNA throughout the genome
  - d) All of these
48. Which of the following biomolecule has self-repair mechanisms?
- a) DNA only
  - b) DNA and RNA
  - c) DNA and proteins
  - d) DNA, RNA and Protein
49. How can we eliminate the recessive alleles in the population?
- a) Out crossing
  - b) Cross breeding
  - c) Inbreeding
  - d) In crossing
50. Small cDNA sequence that represents a unique segment of an active gene is called
- a) SnRNAs
  - b) ESTs
  - c) Contigs
  - d) SNPs
51. Random mating is also known as
- a) Positive assortative mating
  - b) Artificial selection
  - c) Negative assortative mating
  - d) Panmixia
52. Ideal lactation length in dairy cattle is
- a) 305 days
  - b) 365 days
  - c) 180 days
  - d) 120 days
53. Reciprocal recurrent selection is most appropriate for
- a) Sheep
  - b) Poultry
  - c) Goats
  - d) Cattle
54. Interclass correlation among half sibs must be multiplied by \_\_\_\_\_ to obtain heritability
- a) 3
  - b) 2
  - c) 8
  - d) 4
55. Achondroplasia in cattle is inherited as
- a) Autosomal recessive
  - b) Gametic lethal
  - c) Sex-linked lethal
  - d) Autosomal dominant

56. The most common type of aberration found in animals is
- a) Deletion
  - b) Inversion
  - c) Translocation
  - d) Duplication
57. The most common method of heritability estimation is
- a) Maternal half-sib analysis
  - b) Paternal half-sib analysis
  - c) Twin method
  - d) Nested/hierarchical method
58. Minimum number of t-RNAs required to read all the codons is
- a) 16
  - b) 32
  - c) 48
  - d) 64
59. Mass selection is applicable for
- a) Traits with high heritability
  - b) Traits expressed later in life
  - c) Sex influenced traits only
  - d) Sex linked traits only
60. The buffalo breed with the highest fat % is
- a) Jaffrabadi
  - b) Surti
  - c) Bhadawari
  - d) Murrah
61. Ability of an individual to stamp its own characteristics in the offspring is called
- a) Prepotency
  - b) Epistasis
  - c) Dominance
  - d) Over dominance
62. Unit of expression of the regression coefficient is the
- a) Unit of independent variable
  - b) Percentage
  - c) No unit
  - d) Unit of the dependent variable
63. Changing of one purine to another purine is termed
- a) Transversion
  - b) Transformation
  - c) Transition
  - d) Transduction
64. Cross over distance between two genes on a chromosome will never exceed
- a) 25 %
  - b) 50 %
  - c) 75 %
  - d) 100 %



65. A group of eight bits is called
- a) Byte
  - b) Octabits
  - c) Boot
  - d) Software
66. Scatter diagram method is used to study
- a) Dispersion
  - b) Mean
  - c) Correlation
  - d) Kurtosis
67. The value of an individual judged by the mean value of its progeny is called \_\_\_\_\_ of the individual
- a) Phenotypic value
  - b) Average effect
  - c) Genotypic value
  - d) Breeding value
68. Changes in chromosome number due to addition or deletion of whole sets of chromosomes is called
- a) Duplication
  - b) Aneuploidy
  - c) Euploidy
  - d) Translocation
69. The selection method which considers relative economic value of each trait is
- a) Tandem method
  - b) Independent culling level
  - c) Sire Index
  - d) Total Score card method
70. Which of the following cells are cultured for preparation of chromosomes from blood?
- a) Lymphocytes
  - b) Neutrophils
  - c) Monocytes
  - d) Eosinophils
71. Standard deviation as a percentage of the mean is termed as
- a) Coefficient of variation
  - b) Standard error
  - c) Variance
  - d) Confidence limit
72. The mating of F1 individual with recessive parent is
- a) Inter se mating
  - b) Test cross
  - c) Forward crossing
  - d) Grading up
73. The breed of Indian goat which has contributed to Anglo-Nubian is
- a) Barbari
  - b) Black Bengal
  - c) Osmanabadi
  - d) Jamnapari

74. In an equilibrium population, proportion of heterozygotes will be
- a) Equal or lesser than the sum of the proportion of the homozygotes
  - b) Always same as sum of the proportion of the homozygotes
  - c) Higher than the sum of the proportion of the homozygotes
  - d) Can never be equal to the sum of the proportion of homozygotes
75. Genes which change the magnitude of effect of some major gene is referred as
- a) Controlling gene
  - b) Penetrating gene
  - c) Modifying genes
  - d) Minor gene
76. Gene mutations
- a) Occur at the same rate at all loci
  - b) Are sole source of hereditary variation
  - c) Are all recessive
  - d) Are of little importance in evolution of species
77. Carcass quality is best estimated by
- a) Recent ancestors
  - b) Progeny
  - c) Individual's performance
  - d) Sib testing
78. The relationship between the individuals arises due to
- a) Possession of identical genes by descent
  - b) Possession of genes that are alike in state
  - c) Chance factor
  - d) Sharing of common ancestral genes
79. Sire index developed by Sundaesan is known as
- a) Contemporary comparison
  - b) Dairy search index
  - c) Equiparent index
  - d) Herd mate comparison
80. Inbreeding coefficient is a measure of relative loss of
- a) Homozygosity
  - b) Unfavourable genes
  - c) Heterozygosity
  - d) Favourable genes

81. Barred condition in poultry is one of the examples for
- a) Sex limited trait
  - b) Sex influence trait
  - c) Sex linked trait
  - d) Autosomal controlled trait
82. Crossing over takes place during
- a) Leptotene
  - b) Zygotene
  - c) Diplotene
  - d) Pachytene
83. A breeder always intends to bring about permanent improvement in farm animals by adopting
- a) Selection only
  - b) Mutation only
  - c) Good environment
  - d) Selection and mutation
84. The number of types of gametes possible from genotype AaBbCCDd is
- a) 6
  - b) 4
  - c) 16
  - d) 8
85. The functional unit of a gene is termed
- a) Muton
  - b) Cistron
  - c) Replicon
  - d) Operon
86. The stage at which a population does not show further improvement is termed
- a) Selection index
  - b) Selection response
  - c) Selection plateau
  - d) Selection differential
87. Economic traits are
- a) Non parametric traits
  - b) Threshold traits
  - c) Qualitative traits
  - d) Objective traits
88. DNA is amplified in PCR technique by using
- a) Restriction endonucleases
  - b) DNA polymerase
  - c) Primase
  - d) DNA Ligase
89. In cattle all the autosomes are
- a) Acrocentric
  - b) Metacentric
  - c) Sub metacentric
  - d) Telocentric

90. Mean performance of a line expressed as a deviation from the mean of all crosses is called
- a) Specific combining ability                      b) Additive combining ability
  - c) Epistatic combining ability                      d) General combining ability
91. Of the following devices, which is not a secondary storage device?
- a) Floppy drive    b) Pen drive
  - c) Monitor    d) Compact disk drive
92. The concept of inbreeding and relationship was introduced by
- a) J.L.Lush    b) L.N.Hazel
  - c) Karl Pearson    d) S. Wright
93. Most commonly used technique in the production of transgenic animals is
- a) Microinjection    b) Cloning
  - c) Nuclear transfer    d) Gene gun
94. Which of the following is a milch breed?
- a) Kangayam    b) Red Sindhi
  - c) Tharparkar    d) Kankrej
95. The analysis of variance technique was given by
- a) Karl Pearson    b) Galton
  - c) S.Wright    d) Fisher
96. The correlation between measurements made in the life time of the same animal is termed as
- a) Correlation    b) Linkage
  - c) Repeatability    d) Heritability
97. An individual whose two homologous genes are identical by descent is termed
- a) Autozygous    b) Hemizygous
  - c) Heterozygous    d) Allozygous
98. Probability can take values from
- a)  $-\infty$  to  $+\infty$     b) 0 to 1
  - c)  $-\infty$  to +1    d) -1 to +1

99. Synthesis of RNA from DNA is termed

- |                   |                  |
|-------------------|------------------|
| a) Transformation | b) Transduction  |
| c) Translation    | d) Transcription |

100. The systematic arrangement of data in rows and columns is known as

- |                 |                |
|-----------------|----------------|
| a) Partitioning | b) Correlation |
| c) Tabulation   | d) Grouping    |

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