

1. Arithmetic mean of squares of deviations from the mean value is:

A) Regression	B) Variance
C) Standard error	D) Standard deviation

2. Which of the following snake venom is haemotoxic?

A) <i>Ptyas mucosus</i>	B) <i>Naja naja</i>
C) <i>Vipera russelli</i>	D) <i>Bungarus coeruleus</i>

3. Match the following:

a. Progesterone	1. Islets of Langerhans
b. Vasopressin	2. Pineal gland
c. Somatostatin	3. Corpus luteum
d. Melatonin	4. Neurohypophysis

A) a-4, b-1, c-2, d-3	B) a-3, b-4, c-2, d-1
C) a-4, b-3, c-1, d-2	D) a-3, b-4, c-1, d-2

4. The codon which is called 'Ochre':

A) UAA	B) UAG	C) UGA	D) UGG
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5. Assertion (A) : Sycon develops several internal buds known as gemmules.
Reason (R) : Gemmules are highly resistant to unfavourable conditions and help to carry the species through seasons of extreme drought or cold.

A) Both A and R are true and R is the correct explanation of A
B) Both A and R are true but R is not the correct explanation of A
C) A is true but R is false
D) A is false but R is true

6. The failure of implantation in newly inseminated females following exposure to an alien male is called ----- effect.

A) Vanderbergh	B) McClintock	C) Whitten	D) Bruce
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7. Cadmium pollution causes:

A) Skeletal fluorosis	B) Itai-itai disease
C) Minamata disease	D) Black foot disease

8. The fish which is called as 'Red line torpedo':

A) <i>Poecilia reticulata</i>	B) <i>Pterophyllum scalare</i>
C) <i>Carassius auratus</i>	D) <i>Puntius denisonii</i>

9. Nilaparvata lugens is the pest of:

A) Coconut	B) Rubber	C) Paddy	D) Sugar cane
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10. Fishes migrating freshwater to Salt water:
 A) Catadromous B) Potamodromous
 C) Anadromous D) Anadromous
11. The fish which belongs to Mouth brooders:
 A) *Xiphophorus maculatus* B) *Oreochromis mossambicus*
 C) *Rastrelliger kanagurta* D) *Catla catla*
12. Lesch-Nyhan Syndrome is due to the deficiency of the enzyme:
 A) Hypoxanthine-guanine phosphoribosyl transferase
 B) Thymidylate synthase
 C) Adenosine phosphoribosyl transferase
 D) Adenosine deaminase
13. In the following statements which one is **wrong**?
 A) The strand of DNA that directs synthesis of the mRNA via complementary base pairing is called antisense strand.
 B) A eukaryotic mRNA transcript is modified in the nucleus during or shortly after transcription.
 C) A length of poly(A) ~200 nucleotides long is added to the 5' end of mRNA.
 D) In animal cell mRNA is relatively stable, with half-lives ranging from 4-24 hours.
14. Which among the following is known as Kornberg enzyme?
 A) RNA polymerase B) DNA polymerase
 C) DNA helicase D) Telomerase
15. Match the following:
 a. Mulberry silkworm 1. *Antheraea mylitta*
 b. Eri silkworm 2. *Antheraea assamensis*
 c. Muga silkworm 3. *Bombyx mori*
 d. Tassar silkworm 4. *Philosamia ricini*
- A) a-3, b-4, c-2, d-1 B) a-4, b-3, c-1, d-2
 C) a-3, b-2, c-1, d-4 D) a-3, b-4, c-1, d-2
16. The Acrosome of spermatozoan is derived from:
 A) Mitochondria B) Endoplasmic reticulum
 C) Golgi complex D) Lysosome
17. Conglobate gland is found in:
 A) Nereis B) Mosquito C) Prawn D) Cockroach
18. The phylogenetic system of classification was proposed by:
 A) Adolf Engler and Karl Prantl
 B) Carolus Linnaeus
 C) R.H. Whittaker
 D) George Bentham and Joseph Dalton Hooker

19. The process of successful establishment of the species, after reaching a new area:
 A) Sere B) Ecesis C) Stabilization D) Invasion
20. The author of 'The Descent of Man':
 A) Jean-Baptise Lamarck B) Charles Robert Darwin
 C) August Weismann D) Motoo Kimura
21. Match the following:
 a. Tube feet 1. Sponge
 b. Green gland 2. Obelia
 c. Choanocytes 3. Prawn
 d. Cnidocytes 4. Star fish
- A) a-3, b-1, c-4, d-2 B) a-4, b-3, c-1, d-2
 C) a-3, b-4, c-2, d-1 D) a-4, b-3, c-2, d-1
22. Find the mode in the following data set {20, 21, 23, 22, 23, 23}:
 A) 20 B) 21.5 C) 22 D) 23
23. Which among the following statements regarding Eutrophic lakes is/are true?
 1. Eutrophic lakes have a high level of biological productivity.
 2. The lakes support a plethora of plants due to their high nutrient content, particularly nitrogen and phosphorus.
 3. The lakes are characterized by high water transparency and high dissolved oxygen.
- A) 1&2 only B) 2 &3 only C) 1, 2 & 3 D) 3 only
24. Patent act was enacted in:
 A) 1972 B) 1986 C) 1970 D) 1998
25. Which of the following condition support the Hardy-Weinberg Equilibrium?
 A) Non random mating B) Random mating
 C) Mutation D) Gene flow
26. Genome of virus, Varicella zoster:
 A) Positive Single stranded RNA
 B) Negative Single stranded RNA
 C) Double Stranded DNA
 D) None of these
27. Which of the following is true about Transmission electron microscope?
 A) 3-D images showing the surface properties
 B) Electrons are accelerated as a fine beam that scans the specimen
 C) Image magnifications is a function of the power of the objective lens
 D) Sample processing involves critical point drying and heavy metal coating; no sectioning

28. Nitric oxide act as second messenger and it is synthesized from:
 A) L-Tyrosine B) L-Tryptophan
 C) L-Alanine D) L-Arginine
29. IgG mediated hypersensitivity is ----- hypersensitivity.
 A) Type I B) Type II C) Type III D) Type IV
30. In mitosis, centromere divides during:
 A) Prophase B) Metaphase C) Anaphase D) Telophase
31. Shenduruny Wildlife Sanctuary is situated at:
 A) Wayanad B) Ernakulam C) Idukki D) Kollam
32. Nasonov's gland is present in:
 A) House fly B) Mosquito C) Honey bee D) Lepisma
33. Glucose transporter expressed only in Liver cells:
 A) GLUT 1 B) GLUT 2 C) GLUT 3 D) GLUT 5
34. F₀-F₁ particles are located on:
 A) Inner membrane of mitochondria
 B) Golgi cisternae
 C) Lysosomal membrane
 D) Tubules of Endoplasmic reticulum
35. Chitin is a polymer of:
 A) Xylulose B) N-Acetyl D-glucosamine
 C) N-Acetyl D-galactosamine D) Fructose
36. Assertion (A): Four types of electrical brain waves have been recorded in the brain of human being.
 Reason (R) : Beta (β) waves are produced from temporal and occipital lobes when man is under emotional stress.
 A) Both A and R are true and R is the correct explanation of A
 B) Both A and R are true bu R is not the correct explanation of A
 C) A is true but R is false
 D) A is false but R is true
37. The Zonary type of placenta is found in:
 A) Giraffe B) Dog C) Sheep D) Pig
38. The disease due to the deficiency of Niacin:
 A) Beriberi B) Pellagra C) Rickets D) Scurvy
39. The protein involved in receptor-mediated endocytosis:
 A) Calmodulin B) Cadherin C) Clathrin D) Ubiquitin

40. mRNAs, SnRNAs and microRNAs are synthesized by RNA polymerase -----.
 A) I B) II C) III D) IV
41. Match the following:
 a. Zonula Occuldens 1. Spot desmosomes
 b. Macula communicans 2. Belt desmosomes
 c. Macula adherens 3. Tight junctions
 d. Zonula adherens 4. Gap junction
- A) a-4, b-3, c-2, d-1 B) a-4, b-3, c-1, d-2
 C) a-3, b-4, c-1, d-2 D) a-3, b-4, c-2, d-1
42. In humans, the telomeres contain repeated sequence of:
 A) AAAGGT B) GGATTA C) TAACCC D) TTAGGG
43. Which of the following is/are true about Lac Operon
 1. The structural genes consist of lacZ, lacY and lacA
 2. The repressor protein is able to bind to the DNA only in the absence of lactose.
 3. The allolactose act as inducer of the Lac operon
 4. The transcription of the lac Operon occurs in the absence of the bound cAMP-CRP complex.
- A) 1 & 2 only B) 3 & 4 only C) 1, 2 & 3 only D) 1, 2, 3 & 4
44. Castle's intrinsic factor is necessary for the absorption of Vitamin -----.
 A) A B) C C) B₁₂ D) B₆
45. World Wetland Day is on:
 A) March 22 B) February 2 C) June 7 D) September 16
46. Glucose-6-phosphatase is deficient in ----- disease.
 A) Pomp's B) Niemann Pick
 C) Von Gierke's D) Forbe's
47. SDS PAGE is used to separate protein based on:
 A) Electric charge
 B) Molecular weight
 C) The combined charge and molecular weight
 D) None of the above
48. Precursor amino acid for serotonin synthesis is:
 A) Tryptophan B) Glutamic acid
 C) Tyrosine D) Aspartic acid
49. Which among the following is Data Retrieval tool?
 A) TrEMBL B) Entrez C) Swiss-Prot D) EMBL
50. A biological group of species recently derived from a common ancestral species:
 A) Deme B) Clade C) Cline D) Sibling

51. In stomach HCl is secreted by:
 A) Chief cells B) Peptic cells C) Oxyntic cells D) Goblet cells
52. ----- acid is an essential fatty acid.
 A) Linoleic B) Oleic C) Arachidic D) Stearic
53. A patch clamp technique is:
 A) Study of ion-channels in cells
 B) To count the blood cells
 C) To measure the quantity of protein
 D) Study the structure of lipids
54. Baltimore Classification is a system used to classify:
 A) Fungi B) Bacteria C) Virus D) Protista
55. The analysis of interspecific variations and evolutionary relationships between different species is called ----- taxonomy.
 A) Alpha B) Beta C) Gamma D) Numerical
56. Which of the following are Sulphur containing amino acids?
 A) Cysteine & Methionine B) Valine & Proline
 C) Tryptophan & Tyrosine D) Glycine & Isoleucine
57. The software package used for constructing evolutionary tree:
 A) GENSCAN B) OMIM C) PHYLIP D) CATH
58. In frog, Grey crescent becomes----- of embryo.
 A) the future eye B) the future posterior side
 C) the future dorsal side D) the future lateral side
59. The mitochondria, Golgi bodies and Endoplasmic reticulum are isolated by:
 A) X-ray crystallography B) Paper chromatography
 C) Differential centrifugation D) Autoradiography
60. Which of the following maternal effect gene products regulates the formation of posterior part of the Drosophila embryo?
 A) Nanos and caudal B) Nanos and hunchback
 C) Bicoid and hunchback D) Bicoid and caudal
61. The epithelium lining of the urinary tract of human:
 A) Simple squamous epithelium B) Stratified cuboidal epithelium
 C) Transitional epithelium D) Pseudostratified epithelium
62. Green Fluorescent protein used for fluorescent microscopy is derived from:
 A) Fungus B) Jelly fish C) Zebra fish D) Euglena

63. Match the following:
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|----------------------|-----------|
| a. Ceruminous glands | 1. Eye |
| b. Ebner's glands | 2. Nose |
| c. Meibomian glands | 3. Tongue |
| d. Bowman's glands | 4. Ear |
- A) a-3, b-4, c-1, d-2 B) a-4, b-3, c-2, d-1
 C) a-3, b-1, c-2, d-4 D) a-4, b-3, c-1, d-2
64. Animal's swim or move against the water current:
- A) Thigmotaxis B) Rheotaxis
 C) Galvanotaxis D) Geotaxis
65. The Centre of DNA fingerprinting and Diagnostics is located at:
- A) New Delhi B) Kerala
 C) Hyderabad D) Maharashtra
66. The ion necessary for the activation of carbonic anhydrase:
- A) Magnesium B) Cobalt C) Manganese D) Zinc
67. cDNA libraries are prepared from:
- A) Polypeptide chain B) tRNA
 C) DNA D) mRNA
68. Conversion of ATP into cAMP is catalysed by:
- A) Aldolase B) Protein Kinase A
 C) Tyrosine Kinase D) Adenylate cyclase
69. Teichoic acids are found in:
- A) Cell membrane of Mycoplasma
 B) Cell walls of Gram-Positive bacteria
 C) Cell walls of Gram-Negative bacteria
 D) Cell membrane of Euglena
70. X chromosome is inactivated by:
- A) Deacetylation B) Phosphorylation
 C) Hyper acetylation D) Methylation
71. Match the following
- | | |
|------------------------------|--|
| a. Phenetic taxonomy | 1. Biomolecules |
| b. Cladistic taxonomy | 2. Niche |
| c. Ecological taxonomy | 3. Morphological or genetic similarity |
| d. Computational systematics | 4. Phylogeny |
- A) a-3, b-4, c-1, d-2 B) a-4, b-3, c-2, d-1
 C) a-3, b-1, c-4, d-2 D) a-3, b-4, c-2, d-1

72. Identify the group which does **not** come under the Kingdom Protista:
 A) Pyrrophyta B) Psilophyta
 C) Chrysophyta D) Phaeophyta
73. State bird of Kerala
 A) Coracias benghalensis B) Eudynamys scolopacea
 C) Psittacula krameri D) Buceros bicornis
74. According to current system of zoological nomenclature the names of families must end with:
 A) -oidea B) -oidae C) -idea D) -oideae
75. Identify pseudocoelomate:
 A) Rotifera B) Chilopoda
 C) Scaphopoda D) Oligochaeta
76. Which of the following belongs to Deuterostomia ?
 A) Mollusca B) Echinodermata
 C) Nematoda D) Annelida
77. ----- is **not** a characteristic feature of Phoronid.
 A) Bilateral symmetry B) Vermiform in shape
 C) Open blood vascular system D) Diffuse nervous system
78. Avian brain is protected by:
 A) Acondylic skull B) Monocondylic skull
 C) Dicondylic skull D) None of the above
79. Identify the animal which do **not** have polyphyodont dentition:
 A) Shark B) Alligator C) Elephant D) Rabbit
80. The free-living Platyhelminthes are included in the class:
 A) Cestoda B) Trematoda
 C) Turbellaria D) None of the above
81. Diastema is a toothless gap on rabbit's jaw bone due to absence of:
 A) Incisors B) Canines C) Premolars D) Molars
82. The totipotent cell in sponges, which can change into all of the other types of sponge cells:
 A) Choanocytes B) Archeocytes C) Myocytes D) Sclerocytes
83. Identify the coconut pest:
 A) *Aceria guerreronis* B) *Nilaparvatha lugens*
 C) *Spodoptera mauritia* D) *Helicoverpa armigera*
84. The earliest documented representative of the genus Homo
 A) *H. denisova* B) *H. habilis* C) *H. ergaster* D) *H. antecessor*

85. Evolution of new species within the geographic range of its ancestor is -----
speciation.
A) Parapatric B) Sympatric C) Allopatric D) Peripatric
86. The trophic position of the living thing in an ecosystem determines its:
A) Eltonian niche B) Grinnellian niche
C) Hutchinsonian niche D) None of the above
87. Static food web depicts:
A) Only the presence or absence of a trophic interaction
B) Quantity of energy flux between a resource & its consumer
C) Strength of interactions influencing integrity of the ecosystem
D) Both B and C
88. Psammosere:
A) Succession in saline soil
B) Succession of micro-organisms on dead matter
C) Succession on dry rock
D) Succession in sandy area
89. Which of the following is **not** endemic to Western Ghats?
A) Lion-Tailed Macaque B) Pygmy hog
C) Crimson backed Sunbird D) Purple Frog
90. The world's only floating national park is in ----lake.
A) Chandubi B) Sangetsar C) Loktak D) Palak
91. The largest national park in India:
A) Gangotri National Park B) Sundarbans National Park
C) Jim Corbett National Park D) Hemis National Park
92. Learning in which innate response to a stimulus decreases after repeated or prolonged presentations of that stimulus:
A) instinct B) maturation C) habituation D) imprinting
93. Father of operant conditioning:
A) B. F. Skinner B) E. L. Thorndike
C) Ivan Pavlov D) Vladimir Bekhterev
94. Hormone that causes release of bile:
A) Cholecystokinin B) Gastrin
C) Secretin D) Enterocrinin
95. Tissue plasmin activator -----.
A) helps in wound healing B) allergy response
C) immunity D) dissolves clot in blood vessels

96. Identify neuro hypophyseal hormone
A) Prolactin B) Gonadotropin
C) Somatostatin D) Oxytocin
97. Addison's disease is due to an abnormally functioning -----.
A) Pituitary Gland B) Thyroid Gland
C) Adrenal Gland D) Pancreas
98. Mechanoreceptor sensitive to vibration:
A) Meissner's corpuscle B) Merkel cells
C) Ruffini's corpuscles D) Pacinian corpuscles
99. Identify the correct order of events during the menstrual cycle:
A) FSH rise, ovulation, LH surge, Luteal phase, menstruation
B) FSH rise, ovulation, Luteal phase, LH surge, menstruation
C) FSH rise, menstruation, LH surge, ovulation, Luteal phase,
D) FSH rise, LH surge, ovulation, Luteal phase, menstruation
100. Small chemical groups on antigen molecule that can react with antibody:
A) Epitope B) Paratope C) Isotope D) Allotope
101. Eutherian placenta is derived from:
A) Chorion and amnion B) Chorion and allantois
C) Chorion and yolk sac D) Allantois and yolk sac
102. The embryonic ectoderm gives rise to:
A) Nervous system B) Blood-vascular system
C) Digestive system D) Reproductive system
103. Identify the first cloned primate
A) Dolly B) Dewey C) Snuppy D) Tetra
104. First protein to be sequenced:
A) Myoglobin B) Haemoglobin
C) Myosin D) Insulin
105. The allosteric inhibitor binds to the -----.
A) active site of the enzyme
B) enzyme-substrate complex
C) enzyme leading to conformational change of the enzyme
D) enzyme leading to enzyme breakdown
106. Which of the following is the rate limiting factor of urea cycle?
A) carbamoyl-phosphate synthetase 1
B) ornithine transcarbamylase
C) argininosuccinate synthetase
D) argininosuccinate lyase

107. Full form of MRI
 A) Magnetic Ray Imaging
 B) Medical Radiometric Imaging
 C) Magnetic Radiology Imaging
 D) Magnetic Resonance Imaging
108. Thin layer chromatography is ---- chromatography.
 A) Partition
 B) Ion exchange
 C) Gas
 D) Adsorption
109. Father of Biostatistics:
 A) Francis Galton
 B) Archibald Edward Garrod
 C) Claude Shannon
 D) Henri Dutrochet
110. The statistical test that can be used to validate the statement “people with obesity suffer more from cardiovascular diseases.”
 A) Student T test
 B) Pearson Correlation coefficient
 C) Regression analysis
 D) ANOVA
111. The F2 dihybrid ratio of 9 : 3 : 4 is observed when the genes involved exhibit:
 A) Dominantepistasis
 B) Co-dominance
 C) Complementary gene interaction
 D) Recessive epistasis
112. Crossing over takes place during:
 A) Leptotene
 B) Zygotene
 C) Pachytene
 D) diplotene
113. Genetic disorder caused by an additional copy of chromosome 13:
 A) Patau's syndrome
 B) Edwards' syndrome
 C) Marfan syndrome
 D) DiGeorge syndrome
114. One DNA strand has 15% Thymine, then the percentage of Guanine will be:
 A) 15%
 B) 30%
 C) 35%
 D) 70%
115. A PCR-based technique that uses selective amplification of a subset of digested DNA fragments to generate and compare unique fingerprints for genomes of interest:
 A) Amplified Fragment Length Polymorphism
 B) Restriction fragment length polymorphism
 C) Variable Number of Tandem Repeats
 D) Random amplification of polymorphic DNA
116. The optimum temperature for Taq DNA polymerase used in PCR is ----.
 A) 94⁰C
 B) 72⁰C
 C) 82⁰C
 D) 54⁰C
117. Which non-essential amino acid is essential for a person with phenyl ketonuria?
 A) Phenyl alanine
 B) Tyrosine
 C) Glutamine
 D) Serine

118. In G proteins GTPase activity is exhibited by:
A) α subunit B) β subunit C) γ subunit D) δ subunit
119. A commercial hormone mixture used for induced breeding contains an analog of salmon gonadotropin releasing hormone and dopamine inhibitor.
A) Synahorin B) Puberogen C) Ovaprim D) Prolan
120. Chromosomes in which the centromere is placed at the very end of the chromosome:
A) Telocentric B) Acrocentric
C) Submetacentric D) Metacentric
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