

1. Which of the following is the correct Hardy-Weinberg Equation?
 - a) $p^2 + 2pq + q^2$
 - b) $p^2 + pq + q^2$
 - c) $p^2 q^2 + 2pq + q^2$
 - d) $2p^2 q^2 + pq + 2q^2$
2. Which of the following is the excretory organ of *Palaemon*?
 - a) Lungs
 - b) Green gland
 - c) Malpighian tubules
 - d) External gills
3. Maximum percentage of CO₂ produced in the tissue is transported to lungs in the form of
 - a) Carba-amino compound of Hb
 - b) Dissolved condition in plasma
 - c) Bicarbonate ions
 - d) Carboxyhaemoglobin
4. Which of the following releases the hormone gastrin?
 - a) G cell
 - b) Alpha cell
 - c) Delta cell
 - d) Beta cell
5. The symbol of Bombay Natural History Society (BNHS) is
 - a) Blue jay
 - b) Hornbill
 - c) Blackbuck
 - d) Rhinoceros
6. A viriod is
 - a) An acellular structure with DNA
 - b) A prokaryotic cell
 - c) An acellular structure with single naked RNA
 - d) An acellular structure with both DNA and RNA

7. Here are some observations: 1, 2, 2, 1, 4, 5, 6, 6, 3. What is the value of median?
 - a) 5.3
 - b) 4
 - c) 3
 - d) 3.3
8. Kappa particles in *Paramoecium* is related to
 - a) Osmoregulation
 - b) Cytoplasmic inheritance
 - c) Mitochondrial function
 - d) Sexual reproduction
9. The fasting blood glucose level of a person is between 70-100 mg/ 100 ml of blood. The person is
 - a) Normal/Non-diabetic
 - b) Abnormal/Diabetic
 - c) Acute diabetic
 - d) No conclusion can be made
10. Which of the following green house gases has got the highest atmospheric life time?
 - a) CO₂
 - b) CH₄
 - c) N₂O
 - d) CFCs
11. Temperature - dependent sex determination is observed in
 - a) *Drosophila*
 - b) Amphibians
 - c) Reptiles
 - d) Sea Urchins
12. The most common plasmid vector used in genetic engineering is
 - a) PBR328
 - b) PBR322
 - c) PBR325
 - d) PBR330

13. If a person has antigen A and B in RBC, which antibodies will be present in the serum?
- a) Antibody a
 - b) Antibody b
 - c) Both the antibodies a & b
 - d) No antibody
14. Nutrition to immature spermatozoa is supplied by
- a) Seminiferous tubules
 - b) Ledyg cells
 - c) C - cells
 - d) Sertoli cells
15. In non primate mammals the cyclical changes during reproduction are called
- a) Oestrus cycle
 - b) Menstrual cycle
 - c) Menopause
 - d) Menarche
16. Parathromone deficiency in man causes
- a) Hypercalcemia
 - b) Hypocalcemia
 - c) Goitre
 - d) Hypernatremia
17. Vertebrate brain develops from
- a) Ectoderm
 - b) Mesoderm
 - c) Endoderm
 - d) Periderm
18. Barnacles growing on the back of a sea turtle is an example of
- a) Mutualism
 - b) Amensalism
 - c) Commensalism
 - d) Parasitism

19. Protozoans are classified basing on their
- a) Reproductive organs
 - b) Feeding organs
 - c) Adaptive organs
 - d) Locomotory organs
20. Sickle cell anaemia is due to a change in a single amino acid in the haemoglobin. The change is from
- a) Glutamine to valine
 - b) Glutamine to proline
 - c) Glutamine to leucine
 - d) Glutamine to serine
21. QRS in the working of heart is related to
- a) Auricular contraction
 - b) Auricular relaxation
 - c) Ventricular contraction
 - d) Ventricular relaxation
22. Formation of glucose from non-carbohydrate source is called
- a) Glycogenolysis
 - b) Gluconeogenesis
 - c) Glycolysis
 - d) Glycogenesis
23. What is the correct sequence of events in Prophase I of meiosis I?
- a) Leptotene -----Pachytene----Diplotene----Zygotene----Diakinesis
 - b) Leptotene -----Pachytene----Zygotene----Diplotene----Diakinesis
 - c) Leptotene -----Zygotene----Pachytene----Diplotene----Diakinesis
 - d) Leptotene -----Diplotene----Pachytene----Zygotene----Diakinesis
24. Which organism shows both internal and external digestion?
- a) *Amoeba*
 - b) *Sycon*
 - c) *Hydra*
 - d) *Plasmodium*

25. The synthesis of protein from m-RNA is called
- a) Duplication
 - b) Transcription
 - c) Translation
 - d) Transduction
26. Molecules having same empirical formulae but different structural formulae are called
- a) Isomers
 - b) Anisomers
 - c) Isotopes
 - d) Isobar
27. The acrosome of mammalian sperm is derived from
- a) Mitochondria
 - b) Golgi complex
 - c) Ribosomes
 - d) Centrioles
28. Two bones in the skeletal system are joined by
- a) Ligaments
 - b) Tendons
 - c) Muscles
 - d) Neurons
29. Flemming in 1882 observed Lampbrush chromosomes in
- a) Eggs of protochordates
 - b) Salivary glands of dipteran insects
 - c) Oocytes of amphibians
 - d) Spermatids of Whales
30. The repolarisation of nerves during nerve conduction is caused by
- a) Influx of sodium ion
 - b) Efflux of sodium ion
 - c) Influx of potassium ion
 - d) Efflux of potassium ion

38. The part of brain affected when a person consumes alcohol leading to loss of balance is
- a) Cerebrum
 - b) Cerebellum
 - c) Thalamus
 - d) Medulla oblongata
39. The villi of human placenta develops from
- a) Yolk sac
 - b) Chorion
 - c) Allantois
 - d) Chorion and allantois
40. Which one of the following pairs is not correct?
- a) Down's Syndrome-Chromosome 47
 - b) Turner's Syndrome –Chromosome 45
 - c) Klinefelter's syndrome- Chromosome 45
 - d) Patau's Syndrome – Chromosome 45
41. Holandric genes are present on
- a) X chromosome
 - b) Y chromosome
 - c) Autosomes
 - d) Both X and Y chromosomes
42. Clitellum of *Hirudinea* is constituted by segments
- a) 7th-9th
 - b) 8th-10th
 - c) 9th-11th
 - d) 12th-14th
43. Correct sequence of epidermal layers in mammalian skin is
- a) *Stratus corneum-Stratum lucidium-Stratum spinosum-stratum granulosum-Stratum germinativum*
 - b) *Stratus corneum - stratum granulosum- Stratum lucidium- Stratum spinosum- Stratum germinativum*

- c) *Stratus corneum- Stratum lucidium - stratum granulosum - Stratum spinosum -Stratum germinativum*
 - d) *Stratus corneum- Stratum spinosum - Stratum lucidium- stratum granulosum -Stratum germinativum*
44. The net number of ATP molecules produced in glycolytic pathway is
- a) 2
 - b) 4
 - c) 8
 - d) 36
45. Who of the followings provided the first evidence that DNA is the genetic material?
- a) Frederick Griffith
 - b) Alfred D. Hershey and Martha Chase
 - c) Chargoff
 - d) Mathew Meselson and Francois Jacob
46. Which hormone is involved in Cushing's syndrome?
- a) Thyroxine
 - b) Cortisone
 - c) Aldosterone
 - d) Progesterone
47. Complete division of the egg into two cells is known as
- a) Superficial cleavage
 - b) Meroblastic cleavage
 - c) Holoblastic cleavage
 - d) Epiblastic cleavage
48. Jacobson's organ is found in
- a) Bat
 - b) Sparrow
 - c) Lizard
 - d) Rattle snake
49. Shell is absent in
- a) Octopus
 - b) Mussel
 - c) Oyster
 - d) Sepia

50. Metamorphosis of frog tadpoles can be accelerated by the hormone secreted from
- a) Pituitary gland
 - b) Thyroid gland
 - c) Adrenal gland
 - d) Thymus gland
51. Spemann's experiment on frog embryo describes
- a) Induction
 - b) Cell sorting
 - c) Fate map
 - d) Movement of cells
52. Which one of the following statement is correct?
- a) Homologous structures are result of divergent evolution
 - b) Homologous structures are result of convergent evolution
 - c) Analogous structures are result of divergent evolution
 - d) Analogous structures are not result of convergent evolution
53. Jelly fish belongs to the class
- a) Hydrozoa
 - b) Scyphozoa
 - c) Anthozoa
 - d) Mastigophora
54. what is the colour of blood of *Balanoglossus*?
- a) Red
 - b) Blue
 - c) Green
 - d) Colourless
55. Brain size of *Homo erectus* was around
- a) 900 CC
 - b) 1000 CC
 - c) 1200 CC
 - d) 1400 CC

63. In an icosohedral virus, the number of vertices is
- | | |
|-------|-------|
| a) 21 | b) 20 |
| c) 12 | d) 10 |
64. Bacterial transduction is
- | |
|--|
| a) Transfer of genetic material from one bacterium to another bacterium |
| b) Transfer of genetic material from one virus to another bacterium |
| c) Transfer of genetic material from one bacterium to another bacterium by a defective virus |
| d) Transfer of genetic material from one bacterium to another bacterium by a defective prion |
65. Agar is mostly obtained from
- | | |
|----------------|----------------|
| a) Green algae | b) Brown algae |
| c) Blue algae | d) Red algae |
66. Commissure connects
- | | |
|------------------------|---------------------------|
| a) Two similar ganglia | b) Two dissimilar ganglia |
| c) Muscle to nerve | d) Muscle to muscle |
67. Pre and post-zygapophysis are parts of
- | | |
|----------------------|------------------------------|
| a) Vertebrae of frog | b) Pectoral girdle of monkey |
| c) Skull of lizard | d) Sternum of bird |
68. The aggregate of actively swimming aquatic organisms in an aquatic ecosystem is
- | | |
|-------------|------------|
| a) Plankton | b) Nekton |
| c) Neuston | d) Benthos |
69. Heterochromatin is
- | | |
|------------------------------|-------------------------------|
| a) Active and stain lightly | b) Active and stain deeply |
| c) Inactive and stain deeply | d) Inactive and stain lightly |
70. Protection of a species in its natural habitat is known as
- | | |
|--------------------------------|--------------------------------|
| a) <i>In situ</i> conservation | b) <i>Ex situ</i> conservation |
| c) Germplasm conservation | d) Gene library |

71. Two nucleotides in a DNA molecule are joined by
- a) Peptide linkage
 - b) Glycosidic linkage
 - c) Disulphide linkage
 - d) Phosphodiester linkage
72. World Earth Day is celebrated on
- a) 22nd January
 - b) 22nd April
 - c) 22nd July
 - d) 22nd October
73. Elephant was declared as the National Heritage Animal in the year
- a) 2006
 - b) 2008
 - c) 2010
 - d) 2012
74. Who has given the biological species concept?
- a) Ernst Mayr
 - b) Charles darwin
 - c) Ernst Haeckel
 - d) Lamark
75. Zika fever is spread through the bite of
- a) *Anopheles* mosquito
 - b) *Culex* mosquito
 - c) *Aedes* mosquito
 - d) *Mansonia* mosquito
76. Which type of scale is seen in *Scoliodon*?
- a) Cycloid
 - b) Placoid
 - c) Ctenoid
 - d) Ganoid
77. Which of the following taxonomic categories contains organisms least similar to one another?
- a) Species
 - b) Genus
 - c) Family
 - d) Class
78. Identify the snake with neurotoxic poison.
- a) *Naja*
 - b) *Bungarus*
 - c) *Natrix*
 - d) *Daboia*
79. When a frog is transferred from an environment with 20°C to another environment of 30°C, its body temperature will
- a) Remain unchanged
 - b) Rise half way to 25°C
 - c) Rise to 30°C
 - d) Fail to adopt and die

88. Electrophoretic separation of molecules in a mixture is based on the
- a) Charge to mass ratio
 - b) Charge to density ratio
 - c) Density to mass ratio
 - d) Molecular weight to mass ratio
89. Seasonal movements of animals from one defined place of residence to another are called
- a) Dispersals
 - b) Homings
 - c) Migrations
 - d) Emigrations
90. Each pair of Mendel's factors (T and t) is located in
- a) A pair of non-homologous chromosomes
 - b) A pair of homologous chromosomes
 - c) The two sex chromosomes
 - d) Two pairs of homologous chromosomes-one factor for each pair of homologous chromosomes
91. In induced breeding of fishes, the extract of which one of the following is used?
- a) Gonads
 - b) Pancreas
 - c) Thyroid
 - d) Pituitary
92. The active site of an enzyme is formed by a few of the enzyme's
- a) R groups of the amino acids
 - b) Amino groups of the amino acids
 - c) Carboxyl group of the amino acid
 - d) Exposed sulfur bonds
93. In feedback inhibition, a metabolic pathway is switched off by
- a) A rise in temperature
 - b) Lack of a substrate
 - c) Competitive inhibition
 - d) Accumulation of the end product

94. According to Darwin, two different areas within a continent have different species because they have different
- a) Ancestors
 - b) Evolutionary mechanisms
 - c) Environments
 - d) Evolutionary times
95. Which enzyme catalyses the synthesis of a new strand for a DNA molecule by linking nucleotides to the developing strand?
- a) DNA ligase
 - b) DNA polymerase
 - c) Topoisomerase
 - d) Restriction endonuclease
96. The most effective means of conservation is to
- a) Remove predators
 - b) Vaccinate against diseases
 - c) Preserve habitats
 - d) Census the species during breeding
97. Which of the following cellular organelles breaks down complex macromolecules, such as polysaccharides and proteins?
- a) Golgi complex
 - b) Lysosome
 - c) Mitochondrion
 - d) Rough endoplasmic reticulum
98. If the sequence of bases along one side of a DNA molecule is AAGCT, then the complimentary sequence of bases on the other side of DNA molecule is
- a) AAGCT
 - b) GGTAC
 - c) UUCGA
 - d) TTCGA
99. The most abundant lipid in a cell membrane is
- a) Phospholipid
 - b) Steroid
 - c) Cholesterol
 - d) Cutin
100. Which of the following best describes the scientific method?
- a) Doing experiments in laboratories
 - b) Collecting all known facts on a subject
 - c) Developing and testing hypotheses
 - d) Using sensitive electronic measuring instruments