

BIOLOGY

1. Segmentation cavity is another name for
 - (A) Cleavage
 - (B) Blastocoel
 - (C) Body cavity
 - (D) Archenteron
2. Which one of the following can give a complementary and palindromic sequence?
 - (A) 5'-ATATCC -3'
 - (B) 5'- GAATTC -3'
 - (C) 5'- CAAGTG -3'
 - (D) 5'- TGATCC -3'
3. Aneuploidy is the term applied for the
 - (A) Gene mutation
 - (B) Chromosomal mutation
 - (C) Chromosomal mutation involving the addition or loss of one or more chromosomes
 - (D) Chromosomal mutation involving the additional of one or more complete set of chromosomes
4. Which drugs are commonly called 'sleeping pills'?
 - (A) Barbiturates
 - (B) Amphetamines
 - (C) Opiate narcotics
 - (D) Psilocybin
5. Phylogeny represents the
 - (A) Embryological history of animal
 - (B) Comparative anatomy of animal
 - (C) Evolutionary history of animal
 - (D) Fossilization of animal

6. Biodiversity varies with change in latitude and altitude. It
- (A) Decreases from high to low latitude
 - (B) Increases from low to high latitude
 - (C) Decreases from high to low altitude
 - (D) Increases from high to low altitude
7. Radial symmetry occurs in
- (A) Fishes
 - (B) Sponges
 - (C) Starfishes
 - (D) Molluscs
8. A scion is grafted to a stock. The quality of fruits produced will be determined by the genotype of
- (A) Stock
 - (B) Scion
 - (C) Both Stock and Scion
 - (D) Neither Stock nor Scion
9. Crossing over occurs during
- (A) Leptotene
 - (B) Zygotene
 - (C) Pachytene
 - (D) Diplotene
10. Enlargement of certain body parts like legs and arms is the symptom of
- (A) Ascariasis
 - (B) Malaria
 - (C) Typhoid
 - (D) Filariasis
11. A nucleoside is formed by the combination of
- (A) Sugar + Base
 - (B) Sugar + Phosphoric acid
 - (C) Base + Phosphoric acid
 - (D) Sugar + Base + Phosphoric acid
12. The endomembrane system includes the following components
- (A) ER, Golgi complex, Lysosomes, Vacuoles
 - (B) ER, Mitochondria, Lysosomes, Ribosomes
 - (C) ER, Chloroplast, Mitochondria, Vacuoles
 - (D) ER, Chloroplast, Golgi complex, Mitochondria

13. The phase of menstrual cycle when fertilization is possible is
- (A) Leuteal (B) Follicular
(C) Bleeding phase (D) None of these
14. A transgenic plant, Golden Rice is superior due to its high content of
- (A) Starch (B) Protein
(C) Vitamin A (D) Vitamin B
15. IUD control the fertility due to
- (A) Prevention of implantation of the fertilized ovum in uterus
(B) Obstruction of sperms to reach fallopian tubes
(C) Both (A) and (B)
(D) None of the above
16. Photorespiration usually occurs in
- (A) One -cell organelle only (B) Two-cell organelles
(C) Three-cell organelles (D) Four-cell organelles
17. Initiation codons for protein synthesis are
- (A) UUU (B) UAA
(C) GUA (D) AUG
18. What happened when heat killed S-Cells along with live R-Cells were injected into mice ?
- (A) Mice died and showed live S- Cells
(B) Mice survived and showed live S-Cells
(C) Mice died and showed live R-Cells
(D) Mice died and showed heat killed R-Cells

19. Eutrophication leads to death of fish due to
- (A) Increased O₂ content (B) Increased algal content
(C) Decreased O₂ content (D) Decreased algal content
20. The bundles of long fibres or axons present in a nerve is called
- (A) Neuroglia cells (B) Soma
(C) Fascicles (D) Synaptic cleft
21. *Pusa swarnim* (Brassica) is resistant to
- (A) White rust
(B) Leaf and stripe rust
(C) Bacterial blight
(D) Black rot and curl blight black rot
22. Lactose found exclusively in milk is made up of
- (A) Glucose + Glucose (B) Glucose + Galactose
(C) Glucose + Fructose (D) Galactose + Fructose
23. A dicot plant that shows parallel venation is
- (A) *Smilax* (B) *Calophyllum*
(C) Yam (D) Cucumber
24. Microbe used for commercial production of ethanol is
- (A) Streptococcus (B) Staphylococcus
(C) *Aspergillus niger* (D) *Saccharomyces*
25. The method used in transferring the nitrogen fixing genes of *Rhizobium* into major food crops is
- (A) Gene cloning (B) Cell cloning
(C) Organismal cloning (D) All of the above

26. The sticky ends of DNA fragment are joined by
- (A) DNA polymerase (B) Restriction endonuclease
(C) Primase (D) DNA ligase
27. Asexual reproduction involves
- (A) Amphimixis (B) Syngamy
(C) Fusion (D) None of these
28. Protista includes organisms
- (A) Unicellular (B) Acellular
(C) Colonial (D) All of the above
29. Magnesium is an essential nutrient because it is
- (A) Required in large quantity (B) Absorbed by the plant
(C) Not replaced by another element (D) Found in the ash analysis
30. Flowering in short day plants is induced by
- (A) Short nights
(B) Long day with interrupted night
(C) Short days and interrupted long nights
(D) Short days and uninterrupted long nights
31. Photolysis of water involves
- (A) Excitement of water
(B) Evolution of oxygen
(C) Breakdown of water by light
(D) Splitting of water into its ions, H^+ and OH^-

32. Which amino acid is substituted in sickle cell anaemia?
- (A) Glutamic acid by valine in α -chain
 - (B) Glutamic acid by valine in β -chain
 - (C) Valine by glutamic acid in β -chain
 - (D) Valine by glutamic acid in α -chain
33. The shifting of tRNA from A-Site to P-Site is called
- (A) Translocation
 - (B) Transcription
 - (C) Translation
 - (D) Transformation
34. VNTR's are
- (A) Variable number tandem repeats
 - (B) Variable narrow tandem repeats
 - (C) Variable non cistronic transposon repeats
 - (D) Valuable non cistronic transposic region
35. Detritus food chain begins with
- (A) Producers
 - (B) Organic matter
 - (C) Earthworm
 - (D) Dead organic matter
36. Ability to produce maximum offspring is
- (A) Biotic potential
 - (B) Carrying capacity
 - (C) Environmental resistance
 - (D) None of these
37. An active cell gets more oxygen than an inactive cell from oxyhaemoglobin because of
- (A) Low pO_2
 - (B) High pO_2
 - (C) Low pCO_2
 - (D) High pCO_2

38. The Z line is located
- (A) In M line (B) In H line
(C) At the centre of I band (D) At the centre of A band
39. Which is not a congenital disease?
- (A) Colour blindness (B) Haemophilia
(C) Cholera (D) Down's syndrome
40. Who was called 'The Father of Medicine'?
- (A) Dr. Edward Jenner (B) Hippocrates
(C) Louis Pasteur (D) Sir Alexander Fleming
41. Collenchyma cells are present in
- (A) Monocot root (B) Monocot stem
(C) Dicot root (D) Dicot stem
42. Apomixis is
- (A) Development of plants in darkness
(B) Development of plants without fusion of gametes
(C) Inability to perceive stimulus for flowering
(D) Effect of low temperature on plant growth
43. If a diploid cell undergoes three successive mitotic divisions, how many cells will it produce?
- (A) 8 (B) 16
(C) 32 (D) 64
44. The first recombinant DNA was constructed by
- (A) Cohen and Boyer (B) Ian Wilmut
(C) Kary Mullis (D) Briggs and King

45. Children can be immunized against cholera by making them eat transgenic
- (A) Apple (B) Banana
(C) Mango (D) Pineapple
46. Anemophilous plants have
- (A) Feathery stigmas (B) Sticky stigmas
(C) Prominent nectars (D) Colourful flowers
47. Ovaries in females and testis in males represent the
- (A) Primary sex organs (B) Secondary sex organs
(C) Primary organs (D) None of the above
48. The lowest category in taxonomic hierarchy is
- (A) Phylum (B) Subspecies
(C) Species (D) Variety
49. Transpiration pull will be maximum under which of the following conditions ?
- (A) Open stomata, high humid atmosphere and well irrigated soil
(B) Open stomata, high humid atmosphere and dry soil
(C) Open stomata, dry atmosphere and moist soil
(D) Closed stomata, dry atmosphere and dry soil
50. Major nitrogen fixation is carried out by
- (A) Lightning (B) Symbiotic bacteria
(C) Chemical industries (D) Leaching
51. The monohybrid ratio 1 : 2 : 1 in F_2 generation indicates
- (A) Segregation (B) Independent assortment
(C) Dominance (D) Incomplete dominance

52. Genome represents total number of genes in
- (A) A chromosomes
 - (B) Homologous chromosome pair
 - (C) Haploid set of chromosomes
 - (D) Diploid set of chromosomes
53. If Tall (T) is dominant over dwarf (t) and round (R) is dominant over wrinkled seeds (r), the genotype of true breeding tall plant with wrinkled seeds would be
- (A) TtRr
 - (B) TTRR
 - (C) TTrr
 - (D) TTRr
54. The bond formed between phosphate and pentose sugars of DNA is
- (A) Sulphide bond
 - (B) Phosphodiester bond
 - (C) Hydrogen bond
 - (D) Covalent bond
55. Sympatric speciation is the formation of species
- (A) In geographically isolated areas
 - (B) Within a single population without geographical isolation
 - (C) Due to artificial selection
 - (D) Due to polymorphism
56. Ex-situ conservation means
- (A) 'off site' Conservation
 - (B) 'on site' Conservation
 - (C) Conservation in National parks
 - (D) Conservation in biosphere reserves

57. Which animal shows locomotion by setae ?
- (A) Roundworm (B) Earthworm
(C) Leech (D) Tapeworm
58. BCG vaccine is used for
- (A) Tuberculosis (B) Diarrhoea
(C) Swine flu (D) AIDS
59. Synthesis of testosterone by leydig cells is stimulated by
- (A) FSH (B) ICSH
(C) LTH (D) TSH
60. LSD is obtained from
- (A) Mushroom (B) Spineless cactus
(C) Ergot fungus (D) Cocoa plant
61. A 'unit membrane concept' of plasma membrane was given by
- (A) Danielli- Davson (B) Robertson
(C) Singer and Nicolson (D) Watson and Crick
62. The most physiologically active stage in cell cycle is
- (A) Interphase (B) Mitotic phase
(C) Cytokinesis (D) Karyokinesis
63. To facilitate cloning into a vector, a vector must have
- (A) Origin of replication (B) Selectable marker
(C) Cloning sites (D) All of the above
64. Exine of pollen grain is made up of
- (A) Pectocellulose (B) Ligno-cellulose
(C) Sporopollenin (D) Pollenkit

65. A mature sperm has
- (A) A nucleolus, an acrosome, a centriole
 - (B) A nucleolus, an acrosome, a pair of centrioles
 - (C) A pair of flagella
 - (D) A nucleus, an acrosome, a pair of centrioles and a long tail
66. Sequence of organic acids in Krebs cycle is
- (A) Citric acid----- isocitric acid-----succinic acid
 - (B) Citric acid----- succinic acid----- isocitric acid
 - (C) Isocitric acid----- succinic acid----- citric acid
 - (D) Succinic acid----- isocitric acid----- citric acid
67. Binomial nomenclature means
- (A) One name given by two scientists
 - (B) One scientific name consisting of a generic and specific epithet
 - (C) Two names, one latinised, other of a person
 - (D) Two names, one scientific, other local
68. A codon is read in
- (A) 3' - 5' direction
 - (B) 5' - 3' direction
 - (C) 3' - 6' direction
 - (D) 6' - 3' direction
69. A pea plant with purple flowers was crossed with white flowers producing 40 plants with only purple flowers. On selfing, these plants produced 470 plants with purple flowers and 162 with white flowers. What genetic mechanisms account for these results ?
- (A) Incomplete dominance
 - (B) Segregation
 - (C) Dominance
 - (D) Co-dominance

70. If the offsprings have the blood groups O and B, the genotype of parents would be
- (A) $I^B I^B$ and $I^B i$ (B) $I^B I^B$ and $I^B I^B$
 (C) $I^B i$ and ii (D) $I^B I^B$ and ii
71. Cyclosporin A is used as
- (A) Biofertilizers
 (B) A blood-cholesterol lowering agent
 (C) Dyeing material
 (D) An immunosuppressive agent
72. The non-protein part of the enzyme which is tightly bound to apoenzyme is
- (A) Co-enzyme (B) Activator
 (C) Prosthetic group (D) Co-factor
73. An open circulatory system is found in
- (A) Earthworm (B) Cockroach
 (C) Frog (D) All of the above
74. The real function of the 'endosperm' is to
- (A) Supply nutrition to the growing embryo (B) Form integuments of ovule
 (C) Form funicle of ovule (D) None of the above
75. Seeds soaked in water imbibe the same because of
- (A) Adsorption (B) Higher osmotic pressure
 (C) Lower osmotic pressure (D) Pressure of vacuoles
76. A plant with a genotype Aa Bb is crossed with a plant having the genotype aa bb.
 The genotype of F1 would be
- (A) AaBb, AaBB (B) aabb, aaBb
 (C) aaBB, AaBb (D) AaBb, Aabb, aaBb, aabb

77. Which pyramid is always upright and can never be inverted ?
- (A) Pyramid of number (B) Pyramid of biomass
(C) Pyramid of energy (D) Pyramid of aquatic system
78. When two organisms are similar in their external form but differ in their genetic make up, they are referred as
- (A) Genotype (B) Phenotype
(C) Homozygous (D) Heterozygous
79. A thin strip of connective tissue that connects two lobes of thyroid gland is
- (A) Infundibulum (B) Adrenal cortex
(C) Isthmus (D) Suprarenals
80. Hepatic portal system starts from
- (A) Digestive system to liver (B) Kidney to liver
(C) Liver to heart (D) Liver to kidney
81. Industrial melanism was studied in Britain in an insect (peppered moth) which is
- (A) *Betula* (B) *Biston*
(C) *Aphids* (D) *Papilio*
82. The blood leaves the glomerulus through
- (A) Afferent arteriole (B) Efferent arteriole
(C) Renal veins (D) Renal portal veins
83. Brunner's glands are present in
- (A) Mouth (B) Oesophagus
(C) Duodenum (D) Liver

84. Transgenic animals that produced human proteins (α -1-antitrypsin) are used for the treatment of
- (A) Cancer (B) Alzheimer
(C) Cystic fibrosis (D) Rheumatoid arthritis
85. Which one of the following is a semi-autonomous organelle ?
- (A) Lysosomes (B) Ribosome
(C) Chloroplast (D) None of the above
86. A mule is the hybrid of
- (A) Male horse and female donkey (B) Male donkey and female horse
(C) Male horse and a cow (D) Male donkey and a cow
87. Specialised cells that remain in the lymph nodes even after the antigen has disappeared is
- (A) Effector cells (B) Host cells
(C) Cancer cells (D) Memory cells
88. A light reflecting layer in the choroid of some vertebrates is
- (A) Iodopsin (B) Scala media
(C) Sulci (D) Tapetum
89. The small, spherical, water soluble droplets formed by fatty acids and bile salts is
- (A) Chyme (B) Bolus
(C) Micells (D) Lyases
90. Community is defined as
- (A) Individuals of the same kind
(B) Individuals of different kinds
(C) Individuals of a population
(D) Population of different species

91. The only organelle present in both prokaryote and eukaryote is
- (A) Mitochondria (B) Golgi apparatus
(C) Ribosomes (D) Plastids
92. A modification of stem which can carry out photosynthesis is
- (A) Phyllode (B) Cladode
(C) Phylloclade (D) Bulbil
93. Callus is
- (A) Cells from the root tip (B) Cells from the shoot tip
(C) Rapidly dividing cells (D) An unorganised mass of cells
94. The source of sugar for making beer is
- (A) Grape juice (B) Fruit juice
(C) Barley grains (D) None of these
95. Insulin controls the blood sugar level in the body by converting glucose into
- (A) Glycogen (B) Fructose
(C) Glycine (D) Sucrose
96. Antibodies are produced by
- (A) Lymphatic tissue (B) Haemopoietic tissue
(C) Adipose tissue (D) Areolar tissue
97. Which one of the following is known as 'molecular scissors' ?
- (A) DNA ligase (B) DNA polymerase
(C) Restriction endonuclease (D) Plasmids

98. Infertility can be due to
- (A) Congenital (B) German measles
(C) Drugs (D) All of the above
99. The first product of CO_2 fixation in C_4 plants is
- (A) Phosphoglyceric acid (B) Oxaloacetate
(C) Malic acid (D) Phosphoenol-pyruvate
100. In glycolysis, glucose splits into compounds which are
- (A) 5-C (B) 4-C
(C) 2-C (D) 3-C
-