

## ENTRANCE EXAMINATION-2018

### B.SC.Biotechnology

- The single nucleic acid fragment tagged with a radioactive molecule is also called as:  
(a) Plasmid (b) Probe  
(c) Vector (d) Selectable marker
- A patient brought to a hospital with myocardial infarction is immediately expected to be given:  
(a) Cyclosporine (b) Statins  
(c) Penicillin (d) Streptokinase
- In any rice field Nitrogen-fixing microbe associated with Azolla is  
(a) Frankia (b) Tolypothrix  
(c) Spirulina (d) Anabaena
- The true statement regarding DNA polymerase used in PCR is  
(a) It is isolated from a virus  
(b) It remains active at high temperature  
(c) It is used to ligate introduced DNA in recipient cell  
(d) It serves as a selectable marker
- Which one of the following is wrongly paired?  
(a) Micro propagation - In vitro production of plants in large numbers  
(b) Callus - Unorganized mass of cells produced in tissue culture  
(c) Somatic hybridization - Fusion of two diverse cells  
(d) Vector DNA -site for RNA synthesis
- Which part of a plant would be most suitable for raising virus free plants for micro propagation?  
(a) Meristem (b) Node  
(c) Bark (d) Vascular tissue

7. In transformation micro - particles coated with DNA to be born barded with gene are made up of:
- (a) Silicon or Platinum (b) Gold or Tangent  
(c) Silver or Platinum (d) Platinum or Zinc
8. What was the most significant Evolution trend of modern man (Homo-sepiens) ?
- (a) Increasing Cranial Capacity (b) Upright Posture  
(c) Shortening of Jaws (d) Binocular vision
9. If one strand of DNA has the nitrogenous base sequence as ATCTG, What would be the sequence of complementary RNA strand.?
- (a) AACTG (b) ATCGU  
(c) ITAGU (d) UAGAC
10. The human hind brain compromises three parts, one of which is:
- (a) Cerebellum (b) Hypothalamus  
(c) Olfactory (d) Corpus Callosum
11. The hormones that can easily pass through the cell membrane of the the target cell and bind to a receptor inside it (mostly in the nucleus).
- (a) Somatostain, Oxytocin (b) Cortisol, testosterone  
(c) Insulin, Growth hormone (d) Thyroxin, Insulin
12. The leydig cells are the secretory source of:
- (a) Glucagon (b) Androgens  
(c) Progesterone (d) Thyroxin
13. Select the correct statement from the ones given below with respect to periplaneta Americana
- (a) There are 16 very long Malpighian tubules present at the junction of midgut and hindgut  
(b) Grinding of food is carried out only by the mouth parts

- (c) Nervous System is located dorsally, segmented body and ganglia joined by a pair of longitudinal connective
- (d) Males having a pair of short thread like anal styles
14. If  ${}_{92}\text{U}^{235}$  Undergoes successive disintegrations with the end product  ${}_{82}\text{Pb}^{203}$ . The Number of  $\alpha$  and  $\beta$  particles emitted are:
- (a)  $\alpha = 6, \beta = 4$  (b)  $\alpha = 6, \beta = 6$
- (c)  $\alpha = 8, \beta = 6$  (d)  $\alpha = 3, \beta = 3$
15. A body weights 50 grams in air and 40 grams in water. How much would it weight in a liquid of specify gravity 1.5?
- (a) 30 grams (b) 35 grams
- (c) 60 grams (d) 75 grams
16. A bar magnet is equivalent to:
- (a) Solenoid carrying current
- (b) Circular coil carrying current
- (c) Toroid carrying current
- (d) Straight conductor carrying current
17. If a convex and a concave lens separated by distance 'd' are then put in contact. The new focal length of the combination
- (a) Decreases (b) Increases
- (c) Becomes 0 (d) No difference
18. The metal ions will have the largest magnetic moment in its low-spin octahedral complexes:
- (a)  $\text{Fe}^{3+}$  (b)  $\text{Co}^{3+}$
- (c)  $\text{Co}^{2+}$  (d)  $\text{Cr}^{2+}$
19. Cell eating can best be described as:
- (a) Pathocytosis (b) Cytopathology
- (c) Phagocytosis (d) All of the above

20. Sexual cycle of malaria parasite:
- (a) Completed in vertebrate host
  - (b) Start in invertebrate host complete in mosquito
  - (c) Start in mosquito completed in vertebrate host
  - (d) None of the above
21. Elements with partially filled 4f or 5f orbital shall include all of the following EXCEPT:
- (a) Cu
  - (b) Gd
  - (c) Eu
  - (d) Am
22. An alkyl halide may be converted into an alcohol by:
- (a) Addition
  - (b) Substitution
  - (c) dehydrohalogenation
  - (d) Elimination
23. The drug which binds to receptor site and stops communication process of cell is called:
- (a) Antagonists
  - (b) Agonists
  - (c) Target
  - (d) Enzyme
24. Cell theory cannot be applicable to:
- (a) Protozoa
  - (b) Algae
  - (c) Virus
  - (d) Fungi
25. Semiautonomous organelle in the cell is represented by:
- (a) Golgi
  - (b) Peroxisome
  - (c) Mitochondria
  - (d) Chloroplasts
26. The subunits of prokaryotic ribosome are:
- (a) 60s+40s
  - (b) 60s+30s
  - (c) 70s+30s
  - (d) 50s+30s
27. Smooth Endoplasmic reticulum is the site of:
- (a) Protein synthesis
  - (b) Carbohydrate synthesis

- (c) Lipid Synthesis (d) Amino acid synthesis
28. The membrane around the vacuole is termed as:  
(a) Tonoplast (b) Amyloplast  
(c) Chlonoplast (d) None
29. The main function of centromere is:  
(a) Osmoregulation (b) Secretion  
(c) Protein synthesis (d) Formation of spindle fibres
30. Nematocysts are found in which of the following phylum:  
(a) Cnidaria (b) Mollusca  
(c) Annelida (d) Porifera
31. Hydra prevents self fertilization due to:  
(a) Protogynous (b) Hermaphrodite  
(c) Protandry (d) None
32. The most primitive invertebrate from possessing both musculoepithelial and nerve cells is represented by:  
(a) Sycon (b) Hydra  
(c) Fasciola (d) Arthropoda
33. Blood flows through sinuses in  
(a) Open circulation (b) Close circulation  
(c) Portal circulation (d) All of the above
34. Which organ receives only oxygenated blood?  
(a) Liver (b) Lung  
(c) Spleen (d) None
35. Implantation of blastocyst normally occurs on  
(a) Day -5 (b) Day -6  
(c) Day -9 (d) Day -4

36. Primary oocyte is considered as
- (a) Diploid (b) Haploid  
(c) Polyploid (d) None
37. MSH is secreted by
- (a) Interior lobe of pituitary gland  
(b) Posterior lobe of pituitary gland  
(c) Endostyle  
(d) Thymus gland
38. Which one of the following is not the secondary messenger?
- (a) C-AMP (b) Calcium  
(c) C-GMP (d) Sodium
39. The gland which has odorous secretion in mammals?
- (a) Bertholin (b) Pituitary  
(c) Thymus (d) None
40. Plants can absorb nitrogen as
- (a) Nitrate ions (b) Nitrite ions  
(c) Ammonium ions (d) All of the above
41. Industrial  $N_2$  fixation is accomplished by
- (a) Haber Process (b) Helmonts Process  
(c) Friedel Crafts Reaction (d) Reimer-Tiemen Reaction
42. The most important requirement for evolution is
- (a) Mutation (b) Variation  
(c) Natural Selection (d) Continuity of germplasm
43. DuchenneMuscular Dystrophy is a
- (a) Dominant sex linked disorder

- (b) Dominant autosomal disorder  
(c) Recessive sex linked disorder  
(d) Recessive autosomal disorder
44. Wobble hypothesis was proposed by  
(a) Crick (b) Watson  
(c) Nirenberg (d) Khorana
45. All are reducing sugars except  
(a) Sucrose (b) Glucose  
(c) Maltose (d) Lactose
46. Which of the following is not derivative of Cholesterol.  
(a) Vitamin D (b) Vitamin E  
(c) Bile salts (d) Steroid hormone
47. Independent assortment is absent in case of  
(a) Genes located on the same chromosome  
(b) Genes located on homologous chromosomes  
(c) Genes located on non homologous chromosomes  
(d) All of the above
48. Shizolysigenous cavity is present in  
(a) Nymphaea root  
(b) Maize stem  
(c) Both A and B  
(d) None
49. The type of inflorescence found in Focus is  
(a) Cymose (b) Raceme

- (c) Verticellaster (d) Hypanthodium
50. Blood of Cockroach contains no pigment, it means that
- (a) Respiration is anaerobic  
(b) Cockroach does not respire  
(c)  $O_2$  goes directly into tissue by diffusion  
(d)  $O_2$  goes into tissue by intercellular capillary system
51. Protein found in eye lens is
- (a) Crystalline (b) Collagen  
(c) Opsin (d) Rhodopsin
52. The wish-bone of birds is
- (a) Sternum (b) Scapula  
(c) Coracoid (d) Furcula
53. If  $y = \log x^2$  then  $\frac{dy}{dx} =$  \_\_\_\_\_
- (a)  $1/x$  (b)  $2/x$   
(c)  $1/x^2$  (d)  $2/x^2$
54. The third derivative of  $x^4$  is
- (a)  $4x$  (b)  $12x^2$   
(c)  $24x$  (d)  $24$
55.  $\int_0^x \cos x \, dx =$  -----
- (a) 1 (b) 0  
(c) -1 (d) x
56.  $\int \log x \, dx$
- (a)  $x \log x + C$  (b)  $x(\log x - x) + C$   
(c)  $x(\log x - 1) + C$  (d)  $x \log x + x + C$
57. Transpose of a square matrix is



- (a) Diagonal Matrix (b) Rectangular Matrix  
(c) Square Matrix (d) Scaler Matrix
58. If  $\frac{dy}{dx} = kx$ , then y is \_\_\_\_\_  
(a)  $e^x$  (b)  $Ce^{kx}$   
(c)  $Ke^x + C$  (d)  $kx + C$
59. A certain batch of seeds is found to have a probability 0.85 that a seed will germinate. The probability that a plant resulting from a germinated seed will flower is 0.9, then the probability of obtaining a flower from a seed chosen at random is:  
(a) 0.994 (b) 0.050  
(c) 0.765 (d) 0.588
60. The probability in a leap year selected at random will contain 53 Sundays:  
(a)  $1/7$  (b)  $2/7$   
(c)  $3/10$  (d)  $2/10$
61. A frequency distribution is said to be normal distribution if:  
(a) Mean = Mode (b)  $3(\text{Mean} - \text{Mode}) = 2 \text{ Medium}$   
(c) Mean > Median > Mode (d) Mean = Median = Mode
62. Coefficient of correlation  
(a) Can be taken any value (b) Is always more than +1  
(c) Is always less than -1 (d) Any Value between +1 and -1
63. Black wood is obtained from  
(a) Albizzia (b) Manihol  
(c) Dalbergia (d) Acacia
64. In Glycolysis, glucose is converted into compound which is  
(a) PEP (b) Pyruvic acid  
(c) Citric acid (d) Acetyl CoA
65. Dentine is secreted by which of following

- (a) Odontoblast (b) Osteochlast  
(c) Osteoblast (d) Chondroblast
66. CAP in Lac operon is  
(a) Constitutive expression (b) Negative regulator  
(c) Repressor (d) Positive Regulator
67. Movement of protein from nucleus to cytoplasm can be visualized by  
(a) FISH (b) FRAP  
(c) Confocal microscopy (d) Electron microscopy
68. Vegetative reproduction in Ulothrix and Spirogyra occurs by  
(a) Gemmules (b) Death and decay  
(c) Fragmentation (d) Gametes
69. Linked genes are-  
(a) Located on different chromosomes of the same size and shape  
(b) Rarely inherited together  
(c) Located on the same chromosome  
(d) All of the above
70. Which of the following is not a constituent of embalming fluid?  
(a) Phenol (b) Ethanol  
(c) Formalin (d) Glycine
71. Common complement component for both pathways is?  
(a) C3 (b) C5  
(c) C1q (d) C8
72. Essential for tumour metastasis is?  
(a) Angiogenesis (b) Tumorigenesis  
(c) Apoptosis (d) Inhibition of tyrosine kinase activity

73. DNA without introns is found in
- (a) B-DNA (b) Z-DNA  
(c) Nuclear DNA (d) Mitochondrial DNA
74. Maximum nutritional diversity is found in the group
- (a) Monera (b) Plantae  
(c) Fungi (d) Animalia
75. Nuclear membrane is absent in
- (a) Volvox (b) Nostoc  
(c) Penicillium (d) Agaricus
76. PCR and Restriction Fragment Length Polymorphism methods are employed for
- (a) DNA sequencing (b) Genetic Fingerprinting  
(c) Study of enzymes (d) Genetic transformation
77. Removal of RNA polymerase-III from nucleoplasm will affect the synthesis of
- (a) mRNA (b) rRNA  
(c) tRNA (d) hnRNA
78. Evolution of different species in a given area starting from a point and spreading to other geographical area is known as
- (a) Migration (b) Divergent  
(c) Adaptive radiation (d) Natural selection
79. Removal of introns and joining of exons during transcription is called
- (a) Slicing (b) Splicing  
(c) Looping (d) Inducing
80. Which one of the following is not a part of a transcription unit?
- (a) Promoter (b) The structural gene  
(c) The inducer (d) Terminator
81. Which of the following is a molecular crystal?

- (a) Dry ice (b) Rock salt  
(c) Quartz (d) Diamond
82. The number of octahedral void(s) per atom present in a cubic close-packed structure is  
(a) 2 (b) 4  
(c) 1 (d) 3
83. Acid catalyzed hydration of Alkenes except ethene leads to the formation of  
(a) Mixture of secondary and tertiary alcohols  
(b) Mixture primary and secondary alcohols  
(c) Secondary or tertiary alcohol  
(d) None
84. Which among the following molecule shows maximum + I effect (Inductive effect)?  
(a)  $\text{NH}_3^+$  (b)  $\text{CN}$   
(c)  $\text{CONH}_2$  (d)  $\text{OH}$
85. In Reimer-Tiemann reaction, which intermediate is formed?  
(a) Benzyne (b) Nitrene  
(c) Carbene (d) Free radical
86. Chemical which is mainly responsible for ozone depletion is  
(a)  $\text{CO}$  (b)  $\text{CO}_2$   
(c) CFC (d)  $\text{SO}_3$
87. Unit vector is defined as  
(a) Vector having magnitude 'one'  
(b) Vector having 'zero' magnitude  
(c) Both of these  
(d) None of these
88. When particles moves with zero acceleration

- (a)  $V = u$  (b)  $S = ut$   
(c) Both of A and B (d) None
89. A system or a body is said to be in equilibrium when  
(a) Body moves in curved path  
(b) Net force acting on it is zero  
(c) Inertia is a proportional to mass  
(d) In absence of force
90. The wire used in household supply of electricity must be made of metal having  
(a) Low melting point (b) High resistance  
(c) High melting point (d) Low specific heat
91. Electromagnetic wave travels at highest speed in  
(a) Material medium (b) Vacuum  
(c) Oscillating electric and magnetic field (d) None of the above
92. An n-type of semiconductor is formed by adding impurity  
(a) Aluminium, boron and selenium  
(b) Aluminium, boron, indium  
(c) Phosphorus, antimony or arsenic  
(d) Cobalt, aluminium or selenium
93. A good lubricant should have  
(a) Low Viscosity Index (b) High Viscosity Index  
(c) Moderate Viscosity Index (d) Low density
94. In which Process of PV indicator diagram is a straight line parallel to volume axis ?  
(a) Isobaric (b) Isothermal  
(c) Irreversible (d) Adiabatic

95. A magnetic needle is kept in a non uniform magnetic field. It experiences:
- (a) A force only but not a torque
  - (b) A force and torque both
  - (c) A torque only but not a force
  - (d) Neither a torque nor a force
96. A GM crop is
- (a) Irradiated
  - (b) Transgenic
  - (c) Raised on green manure
  - (d) Raised on chemical fertilizer
97. The blood group AB type shows
- (a) Codominance
  - (b) Complete dominance
  - (c) Incomplete dominance
  - (d) Epistasis
98. Which organelles group is involved in manufacturing the proteins needed by the cell?
- (a) Mitochondria, vacuole, ribosome
  - (b) Ribosome, rough ER.
  - (c) Vacuole, lysosome, rough ER, smooth ER
  - (d) Smooth ER, ribosome
99. World AIDS day is on
- (a) December 21
  - (b) December 1
  - (c) November 11
  - (d) June 23
100. A flower which can be divided into equal vertical halves by more than one plane of division is
- (a) Actinomorphic
  - (b) Anisomorphic
  - (c) Zygomorphic
  - (d) Cyclic.