

1. Prokaryotic ribosomes are :
(A) 70S (B) 80S
(C) 40S (D) 58S
2. Initiation codon for translation is :
(A) AGG (B) AUG
(C) AGU (D) GAU
3. Lac operon is :
(A) Inducible system (B) Repressible system
(C) Coordinate system (D) Constitutive system
4. _____ is an alternative form of gene.
(A) Allele (B) Operon
(C) Split gene (D) Pseudogene
5. In a microbial culture the order of various phases is :
(A) Log, Lag, Stationary, Death (B) Stationary, Log, Lag, Death
(C) Lag, Log, Stationary, Death (D) Death, Log, Lag, Stationary
6. Optimum temperature for growth of mesophiles is :
(A) 55°C (B) 37°C
(C) 10°C (D) -20°C
7. In an acidic solution, the pH is :
(A) Greater than p(OH) (B) Less than p(OH)
(C) Equal to p(OH) (D) None of the above.
8. Buffers keep the pH of the solution stable by :
(A) Converting strong acids to weak ones. (B) Converting weak acids to strong ones
(C) Converting weak bases to strong ones (D) None of the above
9. Standard temperature and pressure refers to :
(A) 0 atm and 273 K (B) 1 atm and 273 K
(C) 101.325 kPa and 0 K (D) 23 psi and 100 K
10. How many atoms of carbon are present in 18 grams of glucose ?
(A) 6.0×10^{22} (B) 3.6×10^{23}
(C) 6.0×10^{23} (D) 3.6×10^{24}
11. A respiratory quotient is :
(A) moles of CO₂ produced/ moles of O₂ produced
(B) moles of CO₂ produced/ moles of O₂ consumed
(C) moles of CO₂ consumed/ moles of O₂ produced
(D) moles of CO₂ consumed/ moles of O₂ consumed
12. The international convention for the production of Industrial products in Paris was signed in year :
(A) 1853 (B) 1838
(C) 1883 (D) 1889

13. Which of the following is 5C sugar ?

- (A) Galactose (B) Ribose
- (C) Glucose (D) Mannose

14. Maltose is composed of :

- (A) Galactose + Glucose (B) Glucose + Fructose
- (C) Glucose + Glucose (D) Galactose + Ribose

15. Cobalamin is :

- (A) Vitamin B6 (B) Vitamin B1
- (C) Vitamin A (D) Vitamin B12

16. The conversion of CO₂ and H₂O into organic compounds using energy from light is called :

- (A) Photorespiration (B) Fermentation
- (C) Glycolysis (D) Photosynthesis

17. Chloroplast contains disc like membranous structures arranged in a stack is called :

- (A) Cisternae (B) Grana
- (C) Stroma (D) Thylakoids

18. _____ is not an amino acid.

- (A) Histidine (B) Aspartic acid
- (C) Alanine (D) Oleic acid.

19. The process of formation of nitrate from ammonia is known as :

- (A) Nitrate assimilation (B) Nitrification
- (C) Ammonia assimilation (D) Denitrification

20. Virus Mediated transfer of genetic material from one bacterial cell to another is called :

- (A) Transduction (B) Transformation
- (C) Conjugation (D) Reverse transcription

21. Cell theory was put forward by :

- (A) Sutton and Boveri (B) Watson and Crick
- (C) Darwin (D) Schleiden and Schwann

22. DNA replication takes place during :

- (A) S phase (B) G₁ phase
- (C) G₂ phase (D) Prophase

23. The phase of mitosis during which chromosome condense is :

- (A) Metaphase (B) Prophase
- (C) Telophase (D) Anaphase

24. Biologically important form of DNA is :

- (A) A (B) Z
- (C) B (D) H

25. Ultracentrifuge has speed :

- (A) Maximum 12000 rpm (B) Maximum 25000 rpm
- (C) More than 30000 rpm (D) 10000 rpm

26. Power house of cell is :

- (A) Ribosomes (B) Golgi complex
- (C) Mitochondria (D) Vacuoles

27. Animal tissue lacks :

- (A) Mitochondria (B) Cell membrane
- (C) Cell wall (D) Golgi bodies

28. _____ transports mineral and water in plants.

- (A) Phloem (B) Xylem
- (C) Epidermis (D) Roots

29. If a solution has pH 6.5 then its p(OH) is :

- (A) 6.5 (B) 7.5
- (C) 8.9 (D) 10

30. Cell fractionation is the most appropriate procedure for preparing _____ for study.

- (A) Isolated cells which are normally found tightly attached to neighbouring cells
- (B) Cells without a functional cytoskeleton
- (C) Isolated organelles
- (D) Bone and other similar cells which are situated within a mineral framework.

31. In PCR reactions Pfu is preferred over Taq as Pfu :

- (A) Is more thermostable (B) Is optimally active at higher temperature
- (C) Provides high fidelity (D) Was declared as molecule of the year 1989.

32. Which of the following vector can carry the longest piece of foreign DNA ?

- (A) Plasmid (B) Cosmid
- (C) BAC (D) YAC

33. In the discovery of introns, a DNA molecule called _____ was formed that had the same nucleotide sequence as the gene that produced the mRNA.

- (A) mDNA (B) rDNA
- (C) cDNA (D) tDNA

34. Bacteria protect themselves from viruses by fragmenting viral DNA upon entry with :

- (A) Ligases (B) Endonucleases
- (C) Exonucleases (D) Methylases

35. Northern blot is used for the analysis of :

- (A) mRNA (B) DNA
- (C) Protein (D) Nucleo-protein

36. The recommended CO₂ level needed for growing animal cells in cell culturing is :

- (A) 1% (B) 2%
(C) 5% (D) 7%

37. A probe is used in which stage of the gene transfer process ?

- (A) Cleaving DNA (B) Denaturation of DNA
(C) Cloning (D) Screening.

38. Conformational variation between B and Z forms of DNA is partially due to :

- (A) Rotation of glycosidic bond (B) Loss of hydrogen bonds
(C) Lack of hydrophobic interaction (D) Increase in humidity.

39. A messenger RNA is 336 nucleotides long, including the initiator and termination codons. The number of amino acids in the protein translated from this mRNA is :

- (A) 999 (B) 630
(C) 112 (D) 111

40. For the DNA strand 5 – TACGATCATAT- 3 the correct complementary DNA strand is :

- (A) 3 -TACGATCATAT- 5 (B) 5 -ATGCTAGTATA- 3
(C) 3 -AUGCUAGUAUA-5 (D) 3 -ATGCTAGTATA- 5

41. DNA fingerprint analysis is based on the "Southern" hybridization technique. In this method :

- (A) Nonradioactive cellular RNA, separated by electrophoresis and blotted onto a membrane filter, is tested for hybridization with a radioactive gene-specific probe of either RNA or DNA
(B) Radioactive DNA restriction fragments, separated by electrophoresis and blotted onto a membrane filter are tested for hybridization with a nonradioactive, gene-specific probe of either RNA or DNA
(C) Radioactive cellular RNA, separated by electrophoresis and blotted onto a membrane filter is tested for hybridization with a radioactive, gene-specific probe of either RNA or DNA
(D) Nonradioactive DNA restriction fragments, separated by electrophoresis and blotted onto a membrane filter are tested for hybridization with a radioactive, gene-specific probe of either RNA or DNA.

42. Streptomycin inhibits microbial growth by acting on :

- (A) 30S ribosomal subunit (B) 50S ribosomal subunit
(C) 40S ribosomal subunit (D) 80S ribosomal subunit

43. Crown gall disease in plants is caused by :

- (A) Agrobacterium niger (B) Agrobacterium faciens
(C) Agrobacterium tumifaciens (D) Agrobacterium plantum

44. Traditional method for the commercial production of citric acid is by :

- (A) Batch fermentation (B) Continuous fermentation
(C) Synchronous production (D) Solid state fermentation

45. World Wide Web was developed at :

- (A) University of Pennsylvania (B) Harvard University
(C) European Laboratory for Particle Physics (D) University of California

46. HEPES buffer is used in :

- (A) Animal Tissue culture medium (B) Plant tissue culture medium
(C) Acterial nutrient medium (D) Yeast nutrient medium.

47. The most convenient and popular source of plant protoplast is the :

- (A) Leaf (B) Root nodules
(C) Shoot tips (D) Coleoptile

48. Dideoxy DNA sequencing exclusively depends on one of the following :

- (A) Termination (B) ATP
(C) Plasmid vector (D) Vector primer

49. Full form of BLAST is :

- (A) Broad Local Alignment Search Tool (B) Basic Local Alignment Search Tool
(C) Basic Local Alignment Scanning Tool (D) Broad Local Alignment Scanning Tool

50. Which of the following is not an application of tissue culture ?

- (A) Production of germ free plants (B) Improvement of crop plants
(C) Germplasm storage (D) Vegetative propagation

51. An E. coli cell produces several proteins. To purify one gram of an intracellular enzymes A from these proteins, nearly 2.007×10^{15} cells are required (Molecular weight of enzyme A is 1,00,000 daltons). Find out the number of enzyme A molecule produced per cell under optimum conditions.

- (A) 2000 (B) 2050
(C) 3000 (D) 3050

52. Molecular Pharming mainly refers to production of pharmaceutical products in :

- (A) Bacteria (B) Yeast
(C) Fungus (D) Animal milk

53. Shikonin is :

- (A) Antimalarial, red pigment (B) Antimicrobial, red pigment
(C) Antimicrobial, green pigment (D) Antimalarial, green pigment

54. Most human pathogens prefer temperatures near that of the human body. They are called :

- (A) Psychrophiles (B) Thermophiles
(C) Mesophiles (D) Halophiles

55. Organisms that ferment glucose may produce any of the following end products except :

- (A) Lactic acid (B) Propionic acid
(C) Alcohol (D) Oxygen

56. Acidic amino acids are :

- (A) Nonpolar and negatively charged at physiological pH

- (B) Nonpolar and positively charged at physiological pH
- (C) Polar and negatively charged at physiological pH
- (D) Polar and positively charged at physiological pH

57. 2-D gel electrophoresis is the main tool in the study of :

- (A) Genomics (B) Proteomics
- (C) Bioinformatics (D) Gene cloning.

58. A mass of dividing, undifferentiated cells in a tissue culture is called :

- (A) An embryoid (B) An aggregate
- (C) A callus (D) A plasmodium

59. The use of RFLP or repeat DNA sequence to establish a unique pattern of DNA fragments from an individual is known as :

- (A) Footprinting (B) Fingerprinting
- (C) Handprinting (D) Bodyprinting

60. Insertion of cry gene in plant genome provides :

- (A) Herbicide resistance (B) Virus resistance
- (C) Insect resistance (D) Drought resistance

Answerkeys

1 2 3 4 5 6 7 8 9 10

A B A A C B B A A B

11 12 13 14 15 16 17 18 19 20

B C B C D D D D B A

21 22 23 24 25 26 27 28 29 30

D A B C C C C B B C

31 32 33 34 35 36 37 38 39 40

C D C B A C D A D D

41 42 43 44 45 46 47 48 49 50

D A C D C A A A B D

51 52 53 54 55 56 57 58 59 60

C D B C D C B C B C