Structure of DNA & RNA

1. **A peculiar cytochrome is observed in bacteria and it can react with molecular oxygen, what is it?**
   a. Cyt b b. Cyt c
   c. Cyt d d. Cyt o

2. **The genetic material in HIV is**
   a. ds DNA b. ss DNA
   c. s RNA d. None of these

3. **Which one of the following mutagens act only on replicating DNA?**
   a. Ethidium bromide
   b. Nitrosogeranidine
   c. Acridine orange
   d. None of above

4. **Poly A tail is frequently found in**
   a. Histone in RNA b. Bacterial RNA
   c. eukaryotic RNA d. TRNA

5. **Which of the following is an example of RNA virus?**
   a. SV 40
   b. T_4 phage
   c. Tobacco mosaic virus
   d. Adeno virus

6. **Genomic DNA is extracted, broken into fragments of reasonable size by a restriction endonuclease and then inserted into a cloning vector to generate chimeric vectors. The cloned fragments are called**
   a. Clones b. Genomic library
   c. mRNA d. None of these

7. **Transgenic animals are produced when GH gene fused with**
   a. MT gene b. GH
   c. GRF d. FIX

8. **In which medium the hydridoma cells grow selectively?**
   a. Polyethylene glycol
   b. Hypoxanthine aminopterin thyminine
   c. Hypoxathing-guaning phosphoribosyl transferase
   d. Both b and c

9. **The enzymes which are commonly used in genetic engineering are**
   a. Exonuclease and ligase
   b. Restriction endonuclease and polymerase
   c. Ligase and polymerase
   d. Restriction endonuclease and ligase

10. **A successful hybridoma was produced by fusing**
    a. Plasma cells and plasmids
    b. Plasma cells and myeloma cells
    c. Myeloma cells and plasmids
    d. Plasma cells and bacterial cells

11. The technique involved in comparing the DNA components of two samples is known as

a. Monoclonal antibody techniques
b. Genetic finger printing
c. Recombinant DNA technology
d. Polymerase chain reaction

12. Plasmids are ideal vectors for gene cloning as

a. They can be multiplied by culturing
b. They can be multiplied in the laboratory using enzymes
c. They can replicate freely outside the bacterial cell
d. They are self replicating within the bacterial cell

13. Humans normally have 46 chromosomes in skin cells. How many autosomes would be expected in a kidney cell?

a. 46 b. 23
c. 47 d. 44

14. Pasteur effect is due to

a. Change from aerobic to anaerobic
b. Providing oxygen to anaerobically respiring structures
c. Rapid utilization of ATP
d. Nonsynthesis of ATP

15. A mechanism that can cause a gene to move from one linkage group to another is

a. Trans location b. Inversion
c. Crossing over d. Duplication

16. The smallest unit of genetic material that can undergo mutation is called

a. Gene b. Cistron
c. Replicon d. Muton

17. The two chromatids of metaphase chrosome represent

a. Replicated chromosomes to be separated at anaphase
b. Homologous chromosomes of a diploid set
c. Non-homologous chromosomes joined at the centromere
d. Maternal and paternal chromosomes joined at the centromere

18. Malate dehydrogenase enzyme is a

a. Transferase b. Hydrolase
c. Isomerase d. Oxido reductase

19. In E.Coli att site is in between

a. Gal and biogenes
b. Bio and niacin genes
c. Gal and B genes
d. None of these

20. The best vector for gene cloning

a. Relaxed control plasmid
b. Stringent control plasmid
c. Both a and b
d. None of these

21. A gene that takes part in the synthesis of polypeptide is

a. Structural gene b. Regulator gene
c. Operator gene d. Promoter gene

22. DNA replicates during

a. G1 – phase b. S – phase
c. G2 – phase d. M – phase

23. A human cell containing 22 autosome and a 'Y' chromosome is probably a

a. Male somatic cell
b. Zygote
c. Female somatic cell
d. Sperm cell

24. Crossing-over most commonly occurs during

a. Prophase I b. Prophase II
c. Anaphase I d. Telophase II

25. DNA-replication is by the mechanism of

a. Conservative b. Semiconservative
c. Dispersive d. None of the above

26. Production of RNA from DNA is called

a. Translation b. RNA splicing
c. Transcription d. Transposition

27. Nucleic acids contain

a. Alanine b. Adenine
c. Lysine d. Arginine

28. What are the structural units of nucleic acids?

a. N-bases b. Nucleosides
c. Nucleotides d. Histones

29. The most important function of a gene is to synthesize

a. Enzymes b. Hormones
c. RNA d. DNA

30. One of the genes present exclusively on the X-chromosome in humans is concerned with

a. Baldness
b. Red-green colour baldness
c. Facial hair/moustache in males
d. Night blindness

31. Peptide linkages are formed in between

a. Nucleotides
b. Amino acids
c. Glucose molecules
d. Sucrose

32. The nucleic acid of polio viruses is

a. DNA b. RNA – (+) type
c. t-RNA d. m-RNA

33. Rabies virus is

a. Nake RNA virus
b. Naked DNA virus
c. Enveloped RNA virus
d. Enveloped DNA virus

34. Example for DNA virus:

a. Polio virus b. Adeno virus
c. Echo virus d. Poty virus

35. In genetic engineering breaks in DNA are formed by enzymes known as

a. Restriction enzymes
b. Ligases
c. Nucleases
d. Hydralases

36. DNA transfer from one bacterium to another through phages is termed as

a. Transduction b. Induction
c. Transfection d. Infection

37. Microorganisms usually make acetyl CO-A by oxidizing

a. Acetic acid
b. Pyruvic acid
c. α-ketoglutaric acid
d. Fumaric acid

38. The method of DNA replication proposed by Watson and Crick is

a. Semi conservative
b. Conservative
c. Dispersive
d. Rolling loop

39. The distance between each turn in the helical strand of DNA is

a. 20 A° b. 34 A°
c. 28 A° d. 42 A°

40. Self-replicating, small circular DNA molecules present in bacterial cell are known

a. Plasmids b. Cosmids
c. Plasmomeros d. plastides

41. Western blotting is the technique used in the determination of

a. RNA b. DNA
c. Proteins d. All of these

42. m RNA synthesis from DNA is termed

a. Transcription b. Transformation
c. Translation d. Replication

43. Western blotting is a technique used in the determination of

a. DNA b. RNA
c. Protein d. Polysaccharides

44. Building blocks of Nucleic acids are

a. Amino acids b. Nucleosides
c. Nucleotides d. Nucleo proteins

45. DNA finger printing is based on

a. Repetitive sequences
b. Unique sequences
c. Amplified sequences
d. Non-coding sequences

46. The enzyme required for DNA from RNA template:

a. RNA polymerase
b. Reverse transcriptase
c. DNA polymerase
d. Terminal transferase

47. Double standard RNA is seen in

a. Reo virus b. Rhabdo virus
c. Parvo virus d. Retro virus

48. Example for DNA viruses:

a. Adeno virus
b. Bacteriophage T_1, T_2, T_3, T_4, T_5, T_6
c. Papova virus
d. Herpes virus and cauliflower moisaic
e. All of the above

49. The following are the RNA viruses, except

a. Reo viruses
b. Retro viruses
c. Bacteriophage Φ C
d. Tmv and Bacteriophages Ms2, F2
e. Dahila mosaic virus and Bacteriophages Φ × 174, M12, M13

50. The two strands of DNA are joined non-covalently by

a. Ionic bonds
b. Covalent bonds
c. Hydrogen bonds between bases
d. Polar charges

51. The bases Adenine and Thymine are paired with

a. Double hydrogen bonds
b. Single hydrogen bonds
c. Triple hydrogen bonds
d. Both b and c

52. The no. of hydrogen bonds existing between Guanine and Cytosine are

a. 5 b. 2
c. 3 d. None of these

53. The length of each coil in DNA strand is

a. 15 A° b. 34 A°
c. 30 A° d. 5 A°

54. Nucleic acids are highly charged polymers due to

a. There is phosphodiester bond between 5′-hydroxyl of one ribose and 3′–hydroxyl of next ribose
b. They have positive and negative ends
c. Nucleotides are charged structures
d. Nitrogenous bases are highly ionized compounds

55. The best studied example for specialized transduction is

a. P_1 phage b. P_{22} phage
c. ë-phage d. Both a and c

56. The diagrammatic representation of the total no. of genes in DNA is

a. Genome b. Gene map
c. Gene-structure d. Chromatin

57. During specialized transduction

a. Large amound of DNA is transferred
b. A few no. of genes are transferred
c. Whole DNA is transferred
d. None of these

58. The cell donating DNA during transformation is

a. Endogenate b. Exogenate
c. Mesozygote d. Merosite

59. Genetic information transfer DNA to RNA is called –

a. Transcriptase b. Transduction
c. Transformation d. Recombination

60. The gene transfer occurs by –

a. Transformation b. Transduction
c. Conjugation d. Cell fusion

ANSWERS

1. d	2. a	3. c	4. c	5. c	6. b
7. a	8. b	9. a	10. b	11. b	12. d
13. d	14. b	15. a	16. d	17. a	18. d
19. a	20. a	21. a	22. b	23. b	24. a
25. b	26. c	27. b	28. c	29. a	30. b
31. b	32. b	33. c	34. b	35. b	36. a
37. a	38. a	39. b	40. a	41. b	42. a
43. a	44. c	45. b	46. b	47. a	48. e
49. e	50. c	51. a	52. c	53. b	54. a
55. c	56. b	57. b	58. b	59. a	60. a