EXERCISE

1. Nucleic acids were first discovered by
   a) Boysen Jensen   b) Friederich Meischer   c) Johansen   d) Went

2. A nucleotide consists of
   a) A nitrogen base and pentose sugar
   b) A nitrogen base and phosphate
   c) A pentose sugar and phosphate
   d) A nitrogen base, pentose sugar & phosphate

3. DNA molecule does not contain
   a) Thymine   b) Uracil   c) Adenine   d) Cytosine

4. RNA molecule does not contain
   a) Uracil   b) Thymine   c) Cytosine   d) Adenine

5. Double helical model was proposed by
   a) Boysen Jensen   b) Watson and Crick   c) Watson and Tatum   d) Schleiden and Schwann

6. DNA molecule is usually
   a) single stranded   b) Double stranded   c) Single stranded or Double Stranded   d) None of the above

7. Maximum diameter of DNA double helix is
   a) 20Å  b) 34Å  c) 20µ  d) 34µ

8. Linear length of DNA along one full turn is
   a) 20Å  b) 2Å  c) 34µ  d) 34Å

9. Number of nucleotide pairs in one full turn of DNA are
   a) 10   b) 12   c) 9   d) 11

10. The exact length of DNA double helix is
    a) 1000Å  b) 10,000Å  c) 100Å  d) variable

11. Linear length between two pairs of nucleotides in DNA is
    a) 3.8Å°  b) 3.4Å°  c) 4Å°  d) 2Å°

12. Two polynucleotide chains of DNA are
    a) Identical   b) Circular   c) Complimentary   d) None of the above

13. Artificially genes were first prepared by
    a) Watson and Crick   b) Sulton   c) Meischer   d) Hargobind Khorana
14. DNA duplication takes place during  
a) Prophase  b) Interphase  c) Metaphase  d) Telophase

15. In a eukaryotic cell there are  
a) 4 types of RNA   b) 3 types of RNA   c) 2 types of RNA   d) no RNA

16. RNA is usually  
a) Single stranded  b) Double stranded  
c) single stranded or double stranded  d) None of the above

17. The term gene was coined by  
a) Johansen  b) Charles Darwin  c) Gregor Mendel  d) Linnaeus

18. RNA plays an important role in  
a) Heridity  b) Protein synthesis  c) Photosynthesis  d) Respiration

19. Genetic pool is  
a) Total number of genes in a population  
b) Total number of genes in an individual  
c) Sum total of genes in a generation  
d) Sum total of genes in all – the individuals belonging to a species.

20. DNA consists of two complimentary chains of nucleotides. If the sequence of nucleotides in one chain is AGCTTCGA, then the sequence in the other chain is  
a) TAGGATAT  b) GATCCTAG  c) TCGAAGCT  d) GCTAAGCT

21. Watson, Crick and Wilkins are credited with the discovery that DNA  
a) Is a carrier of generic information  b) Is responsible for the synthesis of messenger RNA  
c) Contains deoxyribose sugar  d) Is a double stranded helix

22. Both transfer RNA and DNA are believed to be characterized by the following  
a) Both are composed of purine, pyrimidine, sugar & phosphate groups  
b) Both are unbranched linear macromolecules  
c) Both exist atleast partially in a helical configuration  
d) All the first three features

23. Who among the following conclusively proved that DNA is the genetic material?  
a) O.T Avery, C. Macleod and McCarty  b) Meselson and Stahl  
c) Hargobind Khorana, Holley and Nirenberg  d) Tatum and Lederberg

24. In Eukaryotic organisms, genes coding for the production of enzymes  
a) Shows the phenomenon of induction & repression.  
b) May be linked or found in different chromosomes  
c) Made up of Introns and Exons  d) All the above

25. The Lac-operon concept in E.coli was introduced in ’96 by  
a) Franklin & Wilkins  b) Jacob & Monod  c) Lederber & Taum  d) Avery & Macleod
26. The structural genes of operon concept are responsible for the
   c) Both a & b  d) None of the above

27. Control genes in operon concept in E. coli is responsible for the
   a) Control of structural genes  b) Control of functional genes
   c) Control of jumping genes  d) Control of all the above genes

28. Phenomenon of repression in operon concept is related to the expression of
   a) Regulatory gene  b) Promoter gene  c) Operator gene  d) All the above

29. Certain viruses have RNA but no DNA. This indicates that
   a) These viruses cannot replicate
   b) These viruses do not have heritable information
   c) RNA can also transmit hereditary information in these viruses.
   d) They can direct the manufacture of proteins but not of nucleic acids.

30. Inheritable gene mutation takes place in
   a) Nuclear DNA  b) Mitochondrial DNA  c) Chloroplast DNA  d) All the above

31. The genes that keep on changing their location on chromosomes are
   a) Jumping genes  b) Split genes  c) Duplicate genes  d) Pleiotrophic gene

32. m-RNA is synthesized in
   a) Nucleus  b) Cytoplasm  c) Ribosomes  d) Polysomes

33. The various steps of protein synthesis was thoroughly studied in
   a) Clostridium  b) E.coli  c) Drosophila  d) Tobacco mosaic virus

34. Central dogma of protein synthesis is
   a) DNA replication- DNA transcription- m RNA Translation- Protein
   b) DNA replication- DNA transcription- RNA Translation -Protein
   c) DNA transcription- m RNA Translation- Protein
   d) DNA transcription- t RNA Translation- Protein

35. The reverse transcription concept of protein synthesis was first discovered by
   a) Temin  b) Temin and D. Baltimore  c) D. Baltimore  d) Holley

36. m-RNA and t-RNA synthesis takes place in
   a) Nucleolus  b) Cytoplasm  c) Ribosomes  d) Nucleus

37. The genetic code in m-RNA is translated into protein by the co-ordination of
   a) Ribosomes and m-RNA
   b) Ribosomes, m-RNA, t-RNA and amino acids
   c) Ribosomes, m-RNA, t-RNA, amino acids and enzymes
   d) Polysomes, m-RNA, t-RNA, aminoacids and enzyme

38. Carrier of aminoacid in cytoplasm towards m-RNA is by
   a) t-RNA  b) r-RNA  c) m-RNA  d) Amino acid
39. DNA is a polymer of
   a) proteins          b) nucleotides        c) RNA        d) carbohydrates

40. Site of protein synthesis in a cell is
   a) Nucleus  b) Cytoplasm  c) Ribosomes  d) Mitochondria

41. The dictionary of genetic code was proposed by
   a) Crick and Watson  b) H.G. Khorana  c) Nirenberg  d) Morgan

42. Amino acids in cytoplasm need activation before transferred to t-RNA and it is helped by
   a) Amino acyl synthetase  b) Amino acyl synthetase and Mg++
   c) Amino acyl synthetase, ATP and Mg++  d) Amino acyl synthetase and ATP

43. Terminating or stop codons are
   a) UAA, UGA, UGG  b) UAA, UAG, UGA  c) UAG, UUU, UGG  d) UAA, UAG, UGG

44. Amino acids are connected to one another by
   a) Hydrogen bond  b) Peptide bond  c) Glycosidic linkage  d) Covalent bond

45. Genetic code is called degenerate code because
   a) One codon has many meanings  b) One codon has only one meaning
   c) Many codons have the same meaning  d) There are as many as 64 codons

46. Two proteins having similar amino acid constituents differ because
   a) Sequence of amino acids are different
   b) One is an intrinsic protein and the other is extrinsic
   c) They are formed by different ribosomes
   d) One protein is dependent on the other for its function

47. Nirenberg, Khorana and Holley got the nobel prize, for
   a) Working out 64 codons  b) Studying aminoacid synthesis
   c) Studying the protein biosynthesis  d) None of the above

48. The first experimental proof of the presence of triplet codons was given by
   a) Khorana  b) Crick  c) Watson  d) Nirenberg

49. Master molecule controlling the protein synthesis is –
   a) RNA  b) DNA  c) Polypeptide chain  d) r-RNA

50. Protein synthesis is a complicated process governed by
   a) DNA, RNA  b) Ribosomes  c) Amino acids  d) All the above

51. The formation of New strand of m-RNA is catalysed by
   a) DNA polymerase  b) RNA polymerase  c) Amino acyl synthetase  d) Topoisomerase

52. What is the average life span of m-RNA in eukaryotes
   a) 52 minutes  b) 10 minutes  c) 30 minutes  d) More than one hour
53. Life span of m-RNA in E.coli (Prokaryotes) is
   a) Less than one minute   b) 2 minutes   c) 5 minutes   d) More than 10 minutes

54. What is meant by monocistronic m-RNA?
   a) Which has only one codon
   b) Which has codons for coding one type of aminoacids
   c) Which has codons for Synthesising only one protein molecules
   d) The m-RNA having the codons for same type of proteins

55. Methionine and formyl Methionine are coded by
   a) AGU   b) AUG   c) GUA   d) GAU

56. Central dogma means
   a) One way flow of information   b) Two way flow of information
   c) Multidirectional flow of information   d) Reverse flow of information

57. How many codes are blank?
   a) One   b) Two   c) Three   d) Four

58. Property of a codon, coding always for a specific aminoacid is called
   a) Non-overlapping   b) Non-ambiguous   c) Degenerate   d) Non-Disjunction

59. Enzyme amino acyl synthetase is responsible for
   a) Initiating m-RNA synthesis   b) Charging t-RNA molecules
   c) Combining t-RNA at P-site of m-RNA   d) Activation of m-RNA

60. The operator gene of Lac Operon is turned on when lactose molecule binds to
   a) Operator gene   b) Repressor protein   c) Promoter site   d) m-RNA