II PUC : BIOLOGY
MOLECULAR BASIS OF INHERITANCE

9. Mention the nucleosides present in DNA?
Ans:- The nucleosides of DNA are adenosine, guanosine, thymidine and cytidine.

10. What is the function of the enzyme Ligase?
Ans:- Ligase is an enzyme that catalyses the formation of a covalent bond between the free ends of two nucleic acids.

11. What is the chemical composition of RNA?
Ans:- RNA is made up of ribose sugars, phosphoric acid molecules and nitrogenous bases which are purines and pyramidines.

12. Mention the purine bases present in RNA?
Ans:- Adenine (A) and guanine (G).

13. Mention the pyramidine bases present in RNA?
Ans:- Cytosine (C) and Uracil (U).

14. Mention the nucleosides present in RNA?
Ans:- The nucleosides of RNA are adenosine, guanosine, uridine and cytidine.

15. What is the function of the enzyme Protease?
Ans:- The function of the enzyme Protease is to catalyse the cleavage of a polypeptide or protein into smaller polypeptides.

16. What is Unique DNA?
Ans:- Unique DNA are those DNA segments whose base sequences are present only in single copy per genome i.e., their base sequences are not repeated in the genome.

17. What is Pallindromic DNA?
Ans:- Pallindromic DNA is a segment of DNA in which the base pair sequence reads the same in both directions from a point of symmetry.

18. What is Genetic RNA?
Ans:- Genetic RNAs are single stranded polynucleotide chains or rings with 5' phosphate – 3' –OH polarity. They exist in virus as single copy or two copy RNA. They do show the secondary structure and are always associated with capsid proteins. As these RNAs combine, replicate, undergo mutation and recombinations, they are called Genetic RNA.

19. Where is Genetic RNA found?
Ans:- Genetic RNA is found in some viruses – such as Tobacco Mosaic Virus (TMV), Rous sarcoma virus (RSV), Human AIDS virus, influenza virus etc.

20. What is a nucleoside ?
Ans:- A Nucleoside is a ribose or deoxyribose molecule attached to any purine or pyramidine base through the first carbon atom of the sugar.

21. What is a nucleotide ?
Ans:- A nucleotide is a building block of the nucleic acid having a pentose sugar, a nitrogenous base and phosphoric acid.

22. Which RNA carries amino acid to the ribosome during protein synthesis?
Ans:- Transfer RNA (tRNA)s carry amino acid to the ribosome during protein synthesis.

23. Which RNA carries the message of the DNA for protein synthesis?
Ans:- Messenger RNA (mRNA)s carry the message of the DNA in the form of triplet codons for protein synthesis.

24. Which RNA co-ordinates the function of protein synthesis and helps in the formation of peptide bonds?
Ans:- Ribosomal RNA (rRNA)s co-ordinate the function of protein synthesis and helps in the formation of peptide bonds.

25. How many types of replications are observed in DNA?
Ans:- Replications observed in DNA are of three types, they are - Conservative replication, Disruptive replication and Semiconservative replication.

26. What is RNA Polmerase I?
Ans:- RNA Polmerase I is the enzyme located in the nucleolus and is responsible for the transcription of ribosomal RNA.

27. What is RNA Polmerase II?
Ans:- RNA polymerase II is the enzyme located in the nucleoplasm which is part of the nucleus other than nucleolus. This enzyme is the major component of RNA polymerase activity and it transcribes all the genes that produce mRNA.

28. What is RNA Polmerase III?
Ans:- RNA polymerase III is the enzyme that occurs in the nucleoplasm and transcribe RNA and 5 RNA genes. It is inhibited by high level of amanitin in animal cells but not in the yeast and insects.

29. How is genetic code universal?
Ans:- The genetic code is universal because a given codon in DNA and mRNA specifies same amino acid in all organisms like prokaryotes, eukaryotes including viruses.

30. What is a Codon?
Ans:- Codon is a unit of message found in mRNA that codes for specific aminoacid during protein synthesis.

31. What is a triplet Codon?
Ans:- A triplet codon is a sequence of nucleotides on an mRNA and it codes for an amino acid during protein synthesis.

(Contd/-)