

CLASS : XIth
DATE :

SUBJECT : BIOLOGY
DPP No. : 6

Topic :-MOLECULAR BASIS OF INHERITANCE

- Telomere repetitive DNA sequences control the function of eukaryotic chromosomes because they
 - act as replicons
 - are RNA transcription initiator
 - help chromosome pairing
 - prevent chromosome loss
- Molecular basis of organ differentiation depends on the modulation in transcription by
 - RNA polymerase
 - ribosome
 - transcription factor
 - anticodon
- The length of DNA molecule greatly exceeds the dimensions of the nucleus in eukaryotic cells. How is this DNA accommodated
 - Deletion of non-essential genes
 - Super-coiling in nucleosomes
 - DNA digestion
 - Through elimination of repetitive DNA
- Differentiation of organs and tissues in a developing organism is associated with
 - developmental mutations
 - differential expression of genes
 - lethal mutations
 - deletion of genes
- The Okazaki fragments in DNA chain growth
 - result in transcription
 - polymerise in the 3' to 5' direction and form replication fork
 - prove semi-conservative nature of DNA replication
 - polymerise in the 5' to 3' direction and explain 3' to 5' DNA replication
- One gene-one enzyme relationship was established for the first time in
 - Neurospora crassa*
 - Salmonella typhimurium*
 - Escherichia coli*
 - Diplococcus pneumoniae*
- A sequential expression of a set of human genes occurs when steroid molecule binds to the
 - transfer RNA
 - messenger RNA
 - DNA sequence
 - ribosome

8. Which one of the following pairs of codons is correctly matched with their function or the signal for the particular amino acid ?
- (A) GUU, GCU - Alanine
(B) UAG, UGA - Stop
(C) AUG, ACG - Start/methionine
(D) UUA, UCA - Leucine
9. Polysome is formed by
- (A) several ribosomes attached to a single mRNA
(B) Many ribosomes attached to a strand of endoplasmic reticulum
(C) a ribosome with several subunits
(D) ribosomes attached to each other in a linear arrangement
10. Whose experiments cracked the DNA and discovered unequivocally that a genetic code is a triplet
- (A) Nirenberg and Matthaei (B) Hershey and Chase
(C) Morgan and Sturtevant (D) Beadle and Tatum
11. What is not true for genetic code ?
- (A) A codon in mRNA is read in a non-contiguous fashion
(B) It is nearly universal
(C) It is degenerate
(D) It is unambiguous
12. Select the two statements out of the four (I-IV) given below about lac operon
- I. Glucose or galactose may bind with the repressor and inactivate it
II. In the absence of lactose, the repressor binds with the operator region
III. The z-gene codes for permease
IV. This was elucidated by Francois Jacob and Jacques Monod
- The correct statements are
- (A) I and II (B) I and III (C) II and IV (D) I and III
13. What are the structures called that give an appearance as 'beads on string' in the chromosomes when viewed under electron microscope ?
- (A) Genes (B) Nucleotides (C) Nucleosomes (D) Base pairs

14. Removal of introns and joining of exons in a defined order during transcription is called
(A) looping (B) inducing (C) slicing (D) splicing
15. If one strand of DNA has the nitrogenous base sequence as ATCTG, what would be the complementary RNA strand sequence
(A) TTAGU (B) UAGAC (C) AACTG (D) ATCGU
16. Ribosomal RNA is actively synthesised in
(A) lysosomes (B) nucleolus (C) nucleoplasm (D) ribosomes
17. Which one of the following is not a part of a transcription unit in DNA ?
(A) The inducer (B) A terminator (C) A promoter (D) The structural gene
18. Removal of RNA polymers-III from nucleoplasm will affect the synthesis of
(A) tRNA (B) hnRNA (C) mRNA (D) rRNA
19. Which enzyme/s will be produced in a cell in which there is a non-sense mutation in the lac Y-gene ?
(A) b-galactosidase (B) Lactose permease
(C) Transcetylase (D) Lactose permease and transcetylase
20. The diagram shows an important concept in the genetic implication of DNA. Fill in the blanks T to C.
(A) A-transcription, B-replication, C-James Watson
(B) A-translation, B-transcription, C-Erwin Chargaff
(C) A-transcription, B-translation, C-Francis Crick
(D) A-translation, B-extension, C-Rosalind Frankin