

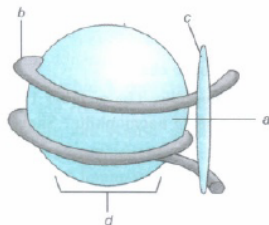
12<sup>TH</sup> CBSE MOLECULAR BASIS OF INHERITANCE

- 1) Jumping genes given by Barbara McIntock are also called  
(a) Transposons (b) Mutons (c) Cistrons (d) Vectors
- 2) Nitrogenous base sequence in one strand of DNA is ATGCTTGA, the sequence in the complementary strand will be  
(a) TAGGTAGT (b) TACGAACT (c) TACGTACT (d) TCCGAACT
- 3) That the mode of DNA replication is semiconservative was demonstrated by  
(a) Khorana (b) Watson and Crick (c) Meselson and Stahl (d) Tayler
- 4) In DNA replication, leading strand replicates in  
(a) 5' ----- > 3' direction continuously (b) 3'----- > 5' direction continuously  
(c) 5'----- > 3' direction discontinuously (d) 3,----- > 5' direction discontinuously
- 5) Temin and Baltimore are associated with the discovery of  
(a) RNA synthesis (b) Transcription (c) Reverse transcription (d) photorespiration
- 6) How many codons code for amino acids?  
(a) 64 (b) 61 (c) 68 (d) 60
- 7) How many base pairs are present in DNA cut by endonuclease  
(a) 2 (b) 4 (c) 6 (d) 8
- 8) In DNA, guanine and cytosine are bonded with how many hydrogen bonds?  
(a) 1 (b) 2 (c) 3 (d) 4
- 9) Hargobind Khorana got Nobel Prize for  
(a) Gene synthesis (b) Determining genetic code (c) Producing disease resistant maize  
(d) Discovery of transposons
- 10) "One gene-one enzyme" hypothesis state that  
(a) One gene codes for one enzyme (b) One gene codes for one polypeptide  
(c) One gene codes for many enzymes (d) One gene regulates all enzymes
- 456) If the sequence of one coding strand of DNA is written as follows:  
5' - ATGCATGCATGCATGCATGCATGC -3'  
write down the sequence of complementary strand in 5'→3' direction.
- 457) How did Hershey and Chase differentiate between DNA and protein in their experiment while proving that DNA is the genetic material?
- 458) List two essential roles of ribosomes during translation.
- 459) In the medium where E.coli was growing, lactose was added, which induced the lac operon. Then, why does lac operon shut down some time after addition of lactose in the medium?
- 460) If a double stranded DNA has 20 percent of cytosine, calculate the percent of adenine in the DNA.

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- 526) Write the functions of RNA polymerase-I and RNA-polymerase-III
- 527) Write the names of various nitrogenous bases found in RNA
- 528) Explain the role of enzyme nucleases and ligases
- 529) What do you understand by genome.
- 530) Name the scientists who started the DNA finger printing technique in India.
- 600) Given below are the sequences of nucleotides in a particular mRNA and amino acids coded by it  
UUU AUG UUC GAC UUA GUG UAA  
Phe - Met - Phe - Glu - Leu - Val  
Write the properties of genetic code that can be and cannot be correlated from the above given data.
- 601) It is established that RNA is the first genetic material. Explain giving three reasons.
- 602) Why is RNA regarded as the first genetic material? Explain
- 647) Who revealed biochemical nature of transforming principle? How was it done?
- 648) Discuss the significance of heavy isotope of nitrogen in Melson and Stahl's experiment.
- 649) Differences between polycistronic mRNA and monocistronic mRNA.
- 841)



The diagram of a nucleosome is shown above.

- (i) Identify the parts labeled a, b, c and d in it.
- (ii) Name the positively-charged and negatively charged components in it.



A stage in the process of transcription in a prokaryote is shown above.

- (a) Name the stage in transcription.
- (b) Identify A and B in the diagram.
- (c) Can this process be coupled to translation? Justify your answer.

- 877) Briefly describe the following:
- (a) Transcription
- (b) Polymorphism
- (c) Translation
- (d) Bioinformatics

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