CLASS XII
MOLECULAR BASIS OF INHERITANCE

1	Write the two specific codons that a translational unit of mRNA is flanked by one on either sides.	1
2	Define nucleosome.	1
3	State the central dogma of molecular biology.	1
4	Name the enzyme responsible for synthesis of new DNA strand during DNA replication	1
5	Distinguish between euchromatin and heterochromatin.	2
6	State the functions of Ribozyme and release factor in protein synthesis respectively.	2
7	Differentiate between exons and introns.	2
8	How do histones acquire positive charge?	2
9	Both the strands of DNA are not copied during transcription. Give reason.	2
10	Transcription and translation are coupled in prokaryotes. Comment on the statement.	2
11	The base sequence in one of the strands of DNA is TAGCATGAT 3 (i) Give the base sequence of its complementary strand. (ii) How are these base pairs held together in a DNA molecule ? (iii) Explain the base complementarity rules. Name the scientist who framed this rule.	3
12	Draw a neat labeled sketch of replicating fork of DNA replication.	
13	How would lac operon operate in E.coli growing in a culture medium where lactose is present as source of sugar?	2
14	a) What are the transcriptional products of RNA polymerase III ? (b)Differentiate between 'Capping' and 'Tailing'. (c) Expand hnRNA.	3
15	a) Construct a complete transcription unit with promoter and terminator based on the hypothetical template strand given below. ATGCATGCATAC	

b) Write the RNA strand transcribed from the above transcription unit along with its polarity.

16 Describe the various steps of Griffith's experiment that led to the conclusion of the 'Transforming principle' . (b) How did the chemical nature of the 'Transforming principle' get established ? 5

17 What is Central dogma ? Who proposed it ? (b) Describe Meselson and Stahl's experiment to prove that the DNA replication is semi-conservative. 5

18 Name the scientists who proved experimentally that DNA is the genetic material. Describe their experiment. 5