

CBSE Class 12 Biology

Molecular Basis of Inheritance

Section 'A'

- Q. 1. Mention the role of ribosomes in peptide - bond formation. How does ATP facilitate it?**
- Q. 2. Name the enzyme involved in the continuous replication of DNA strand. Mention the polarity of the template strand.**
- Q. 3. What is a Cistron?**
- Q. 4. Why is secondary immune response more intense than the primary immune response in humans?**
- Q. 5. Retroviruses have no DNA. However, the DNA of the infected host cell does possess viral DNA. How is it possible?**
- Q. 6. Write the name of the following;**
- (a) The most common species of bees suitable for apiculture**
 - (b) An improved breed of chicken**
- Q. 7. Write the full form of VNTR. How is VNTR different from 'probe,?'**
- Q. 8. Mention the contribution of genetic maps in human genome project.**
- Q. 9. Name the parts 'A' and 'B' of the transcription given below:**
- Q.10. Differentiate between the genetic codes given below:**
- (a) Unambiguous and Universal**
 - (b) Degenerate and Initiator**
- Q.11. Give an example of an organism that enters 'diapause' and why.**

- Q.12. (a) Why is tRNA called an adaptor molecule?**
- Q.13. Name the enzyme and state its property that is responsible for and discontinuous replication of the two strands of a DNA molecule.**
- Q. 14. Mention two functions of the codon AUG.**
- Q.15. Name the factors for RNA polymerase enzyme which recognises the start and termination signals on DNA for transcription process in Bacteria.**
- Q.16. Name a molecular diagnostic technique to detect the presence of a pathogen in its early stage of infection.**
- Q.17. RNA viruses mutate and evolve faster than other viruses. Why?**
- Q.18. Mention two functions of the codon AUG.**
- Q.19. When and at what end does the 'tailing' of hrRNA take place?**
- Q.20. State the fate of a pair of autosomes during gamete formation.**

Section 'B'

- Q.21. (a) What do 'Y' and 'B' stand for in 'YAC' and 'BAC' used in Human Genome Project (HGP). Mention their role in the project.**
- (b) Write the percentage of the total human genome that codes for proteins and The percentage of discovered genes whose functions are known as observed during HGP.**
- (c) Expand 'SNPs' identified by scientists in HGP.**
- Q.22. Following are not features of genetic codes. What does each one indicate? Stop codon; Unambiguous codon; Degenerate codon; Universal codon. Stop codon: It includes UAA, UAG and UGA. These codons signal end of protein synthesis.**

Q.23. In a maternity clinic, for some reasons the authorities are not able to hand Over the two new-borns to their respective real parents. Name and describe the technique that you would suggest to sort out the matter.

Q.24. (a) Draw a neat labelled diagram of a nucleosome.

(b) Mention what enables histones to acquire a positive charge.

Q.25.



Study the mRNA segment given above which is complete to be translated into a polypeptide chain.

- (i) Write the codons 'a' and 'b'.**
- (ii) What do they code for?**
- (iii) How is peptide bond formed between two amino acids in the ribosome?**

Q.26. Discuss the role the enzyme DNA ligase plays during DNA replication.

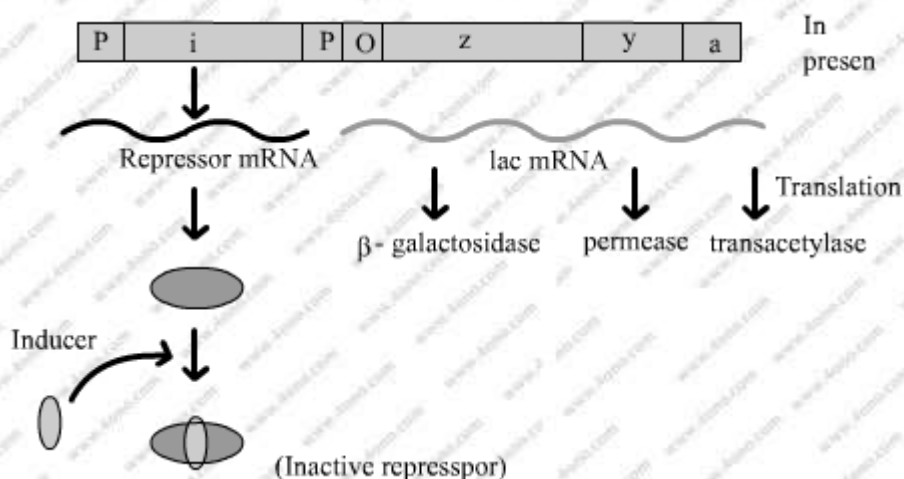
Q.27. Unambiguous, universal and degenerate are some of the terms used for the genetic code. Explain the salient features of each one of them.

- Q.28. (i) Name the scientist who suggested that the genetic code should be made of a combination of three nucleotides.**
(ii) Explain the basis on which he arrived at this conclusion.

Q.29. Draw a neat labelled sketch of a replicating fork of DNA.

Q.30. How do histones acquire positive charge?

Q.31.



- Name the molecule 'X' synthesized by, i' gene. How does this molecule get inactivated?
- Which one of the structural genes codes for (β -galactosidase)?
- When will the transcription of this gene stop?

Q.32. Explain the dual function of AUG codon. Give the sequence of bases it is transcribed from and. its anticodon.

Q.33. Describe the structure of a nucleosome.

Q.34. Mention the evolutionary significance of the following organisms:

- Shrews
- Lobefins
- Homo habilis
- Homo erectus

Section 'C'

- Q.35.** In a series of experiments with *Streptococcus* and mice F. Griffith concluded that R-strain bacteria had been transformed. Explain.
- Q.36.** List the salient features of double helix structure of DNA.
- Q.37.** Unambiguous, universal and degenerate are some of the terms used for the genetic code. Explain the salient features of each one of them.
- Q.38.** (i) Name the enzyme that catalyses the transcription of hnRNA.
(ii) Why does the hnRNA need to undergo changes? List the changes hnRNA undergoes and where in the cell such changes take place.

Section – D

- Q.39.** Following the collision of two trains a large number of passengers are killed. A majority of them are beyond recognition. Authorities want to hand over the dead to their relatives. Name a modern scientific method and write the procedure that would help in the identification of kinship.
- Q.40.** (a) A DNA segment has a total of 1000 nucleotides, out of which 240 of them are adenine containing nucleotides. How many pyrimidine bases this DNA segment possesses?
(b) Draw a diagrammatic sketch of a portion of DNA segment to support your answer.
- Q.41.** Describe the structure of a RNA polynucleotide chain having four different types of nucleotides.
- Q.42.** Describe the experiment that helped demonstrate the semi-conservative mode of DNA replication.
- Q.43.** It is established that RNA is the first genetic material. Explain giving three reasons.

Q.44. (a) Name the enzyme responsible for the transcription of tRNA and the amino acid the initiator tRNA gets linked with.

(b) Explain the role of initiator tRNA in initiation of protein synthesis.

Q.45. The base sequence in one of the strands of DNA is TAGCATGAT.

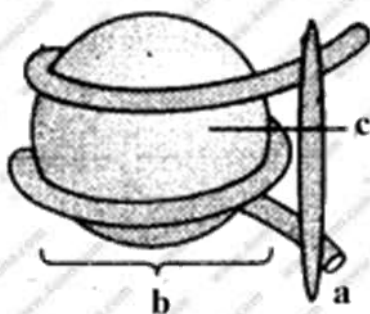
(i) Give the base sequence of its complementary strand.

(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.

Q.46. Describe the initiation process of transcription in Bacteria.

Q.47.



(a) What is this diagram representing?

(b) Name the parts a, b, and c.

(c) In the eukaryotes, the DNA molecules are organized within the nucleus. How is the DNA molecule organised in a bacterial cell in absence of a nucleus?

Q.48. Given below is a part of the template strand of a structural gene:

TAC CAT TAG GAT

(a) Write its transcribed mRNA strand with its polarity.

(b) Explain the mechanism involved in initiation of transcription of this strand.

Q.49. Explain the pattern of inheritance of haemophilia in humans. Why is the possibility of a human female becoming hemophilic extremely rare? Explain.

- 4ono.com 4ono.com 4ono.com 4ono.com 4ono.com 4ono.com 4ono.com 4ono.com 4ono.com 4ono.com 4ono.com
- Q.50. One of the codons on mRNA is AUG. Draw the structure of tRNA adapter molecule for this codon. Explain the uniqueness of this tRNA?**
- Q.51. How did Hershey and Chase prove that DNA is the hereditary material? Explain their experiment with suitable diagrams.**
- Q.52. A number of passengers were severely burnt beyond recognition during a train accident. Name and describe a modern technique that can help hand over the dead to their relatives.**
- Q.53. How do m-RNA, t-RNA and ribosomes help in the process of translation?**
- Q.54. How did Hershey and Chase established that DNA is transferred from virus to Bacteria?**
- Q.55. State the aim and describe Messelson and Stahl's experiment.**
- (a) They cultureri E. coli in a medium containing $^{15}NH_4Cl$ for a few generations and centrifuged the content?**
 - (b) What did Meselson and Stahl conclude from this experiment? Explain with the help of diagram.**
 - (c) Which is the first genetic material? Give reasons in support of your answer.**
- Q.56. What is 'semi-conservative' DNA. replication? How was it experimentally proved and by whom?**
- Q.57. (a)How are the following formed and involved in DNA packaging in a nucleus of a cell?**
- (i) Histone octomer**
 - (ii) Nucleosome**
 - (iii) Chromatin**
- (b) Differentiate between Euchromatin and Heterochromatin.**
- Q.58. What is 'semi-conservative' DNA. replication? How was it experimentally proved and by whom?**

Buy 12th Biology Chapter Wise Important Questions with solution @ 4ono click the link given below:

<https://www.4ono.com/cbse-12-biology-important-question-and-answers/>

OR

[Class 12 Biology Chapter Wise Important Questions](#)



Download more @ www.4ono.com