



BIOLOGY

NCERT - NCERT BIOLOGY(HINGLISH)

MOLECULAR BASIS OF INHERITANCE

Molecular Basis Of Inheritance

1. Group the following as nitrogenous bases and nucleosides:

Adenine, Cytidine, Thymine, Guanosine, Uracil and Cytosine.



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2. If a double stranded DNA has 20 per cent of cytosine, calculate the per cent of adenine in the DNA.



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3. If the sequence of one strand of DNA is written as follows:

5'-ATGCATGCATGCATGCATGCATGCATGC-3'

Write down the sequence of complementary strand in 5' → 3' direction



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4. If the sequence of the coding strand in a transcription unit is written as follows:

5'-ATGCATGCATGCATGCATGCATGCATGC-3'. Write down the sequence of mRNA.



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5. Which property of DNA double helix led Watson and Crick to hypothesise semiconservative mode of DNA replication? Explain.



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6. Depending upon the chemical nature of the template (DNA or RNA) and the nature of nucleic acids synthesised from it (DNA or RNA), list the types of nucleic acid polymerases.



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7. How did Hershey and Chase differentiate between DNA and protein in their experiment while proving that DNA is the genetic material?





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8. Differentiate between the followings:

(a) Repetitive DNA and Satellite DNA

(b) mRNA and tRNA

(c) Template strand and Coding strand



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9. List two essential roles of ribosome during translation.



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10. 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?



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11. Explain (in one or two lines) the function of the followings:

(a) Promoter

(b) tRNA

(c) Exons



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12. Why is the Human Genome project called a mega project?



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13. What is DNA fingerprinting? Mention its application.



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14. Briefly describe the following:

(a) Transcription

(b) Polymorphism

(c) Translation

(d) Bioinformatics



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