

## Molecular Basis of Inheritance

- Distinguishing character between RNA and DNA is**
  - Number of strands
  - Presence or absence of Uracil
  - Type of sugar
  - Base pairing
- In the formation of polynucleotide chain the number of different types of nucleotides participates are**
  - 4
  - 8
  - 5
  - 9
- How many bases are present if the length of *E.coli* DNA is 1.36 mm.**
  - $8000 \times 10^3$
  - $4000 \times 10^3$
  - $46.24 \times 10^6$
  - $92.48 \times 10^8$
- The distance between two nucleotides in opposite strands is**
  - 0.34 nm
  - $0.34 \text{ \AA}$
  - 20 nm
  - $20 \text{ \AA}$
- Chargaff's rule is**
  - $A+T = G+C$
  - $A/T = G/C$
  - $A+T/G+C = 1$
  - $A+G/T+C = 1$
- Assertion (A): The distance between two strands is always constant in a DNA molecule.**  
**Reason(R): Purins always pairs with Pyrimidines.**
  - Both A and R are true and R is the correct explanation of A.
  - Both A and R are true but R is not the correct explanation of A.
  - A is true, R is false
  - A is false, R is true
- True statements among the following is**
  - Naked DNA molecule is acidic.
  - Guanosine is a nucleotide.
  - Two nucleotides are linked in  $3' \rightarrow 5'$  to form dinucleotide.
  - DNA is a double stranded left handed helical structure.
  - I & II
  - I & III
  - II & III
  - II & IV
- Length of the DNA that coils round the Histone octomer is**
  - $680 \text{ \AA}$
  - 6.8 nm
  - 0.587 mm
  - $58.7 \text{ \AA}$
- True statement regarding Griffith's experiment**
  - Biochemical nature of genetic material is known.
  - Experimental bacteria is *Streptococcus pneumoniae*.
  - Heat killed virulent bacteria is transformed.
  - Mice developed resistance to avirulent bacteria
  - I & II
  - II, III & IV
  - Only II
  - I, II & IV

10. **In Hershey and Chase experiments if radioactive isotope of both phosphorus and sulphur is used simultaneously in culturing viruses and allowed these to infect *E.coli* then**
1. All the viral particles resulting from infection show radioactive phosphorus and sulphur.
  2. Only the DNA molecules viral progeny show radioactivity
  3. Only protein coat is radioactive
  4. Some viral particles show radioactive DNA and some with radioactive coat.
11. **The primary reason why protein cannot be a genetic material is**
1. Its complexity
  2. Inability to duplicate
  3. Easily degradable
  4. Its large size
12. **RNA is less stable than DNA due to**
1. Lack of double strand in RNA
  2. RNA cannot generate its replica
  3. Smaller size of RNA
  4. Presence of 2'OH in the pentose sugar of RNA.
13. **Wrong statement among the following**
1. RNA cannot mutate
  2. RNA viruses are less stable
  3. RNA can code for protein
  4. RNA can code for DNA
14. **Assertion (A): DNA is dependent on RNA for the synthesis of proteins.**  
**Reason(R): DNA does not have code for protein synthesis.**
- 1) Both A and R are true and R is the correct explanation of A.
  - 2) Both A and R are true but R is not the correct explanation of A.
  - 3) A is true, R is false
  - 4) A is false, R is true
15. **Catalytic RNA or RNA enzymes are known as**
1. RNase
  2. RNA polymerase
  3. 23 S
  4. Ribozyme
16. **In RNA thymine replaced by**
1. Putine
  2. Pyrimidine
  3. CH<sub>3</sub> group
  4. Cytosine
17. **Experiment showing semi conservation of DNA is performed by**
1. Meselson & Stahl
  2. Watson and Crick
  3. Hershey and Chase
  4. Avery and MacLeod.
18. **Number of nucleotides in the genome of  $\xi$  x 174 is**
- 1) 5386 nucleotides
  - 2) 6000 nucleotides
  - 3)  $9.2 \times 10^6$  nucleotides
  - 4)  $3.3 \times 10^9$  nucleotides



- 29. rRNAs are transcribed by**  
1. RNA polymerase I      2. RNA polymerase II      3. RNA polymerase III      4. Both I & III
- 30. Nucleotide used in capping is**  
1. ATP                      2. GTP                      3. CTP                      4. TTP
- 31. tRNA is synthesized in**  
1. Cytosol                  2. Nucleoplasm                  3. Nucleolus                  4. Cytosol & nucleoplasm
- 32. Starting codon codes for**  
1. Methionine                  2. Valine                  3. Phenylalanine                  4. Guanine
- 33. Nucleotide absent in termination codons is**  
1. Thymine                  2. Adenine                  3. Guanine                  4. Cytosine
- 34. Charged tRNA other than methionine enters into**  
1. A site                      2. P site                      3. Either A or P site      4. Neither P nor A site
- 35. In the absence of inducer in the lac operon is**  
1. Transcription takes place                  2. Repressor cannot be synthesized  
3. Transcription does not start                  4. Translation does not take place.
- 36. Assertion (A): In bacteria translation and transcription takes place simultaneously.  
Reason(R): Bacteria conserves much energy during protein synthesis.**  
1) Both A and R are true and R is the correct explanation of A.  
2) Both A and R are true but R is not the correct explanation of A.  
3) A is true, R is false  
4) A is false, R is true
- 37. The number of hydrogen bonds in a small stretch of DNA with 20 Adenines and 30 Guanines**  
1) 50                      2) 120                      3) 100                      4) 130
- 38. In DNA replication after three generation ratio of old and new strands is**  
1) 1:1                      2) 1:3                      3) 1:7                      4) 1:4
- 39. Number of t RNA based on their anti codons are**  
1) 64                      2) 20                      3) 3                      4) 61
- 40. If Adenines are 30% in a DNA, the percentage of Cytosine is**  
1) 30%                      2) 70%                      3) 20%                      4) 50%

## Molecular basis of inheritance

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
3	2	1	4	4	1	2	1	3	2	2	4	1	3	4	2	1	1	3	1
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
2	4	3	3	1	2	3	4	1	2	2	1	4	1	3	3	4	3	4	3

[www.sakshieducation.com](http://www.sakshieducation.com)