Molecular Basis of Inheritance

1.	Distinguishing cl	naracter between	RNA an	and DNA is								
	1. Number of stra	nds	2. Presence or absence of Uracil									
	3. Type of sugar		4. Base pairing									
2.	In the formation	formation of polynucleotide chain the number of different types of nucleotides										
	participates are											
	1) 4	2) 8	3):	5	4) 9							
3.	How many bases	are present if the	elength	of <i>E.coli</i> DNA	is 1.36 mm							
	1) 8000×10^3	$2)4000 \times 10^3$	3)	46.24×10^6	4)	92.48×10^8						
4.	4. The distance between two nucleotides in opposite strands is											
	1) 0.34 nm	$2) 0.34 A^0$	3) 2	20 nm	4) $20 A^0$							
5.	Chargaff's rule i	\mathbf{s}										
	1. $A+T = G+C$	2. $A/T =$	G/C	3.A+T/G+0	C = 1	4. $A+G/T+C = 1$						
6.	Assertion (A): T	Assertion (A): The distance between two strands is always constant in a DNA molecule.										
	Reason(R): Purins always pairs with Pyrimidines.											
	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	•									
7.	True statements among the following is											
	I. Naked DNA molecule is acidic.											
	II. Guanosine is a	nucleotide.										
	III. Two nucleotides are linked in $3' \rightarrow 5'$ to form dinucleotide.											
	IV. DNA is a dou	ble stranded left ha	anded he	lical structure.								
	1. I & II	2. I & III	[3. II & III	4.	II & IV						
8.	Length of the DN	NA that coils roun	d the Hi	istone octomer	is							
	1) 680 A^0	2) 6.8 nm	3) (0.587 mm	4. 58.7 A	0						
9.	True statement regarding Griffith's experiment											
	I. Biochemical na	I. Biochemical nature of genetic material is known.										
	II. Experimental b	pacteria is Streptoc	occus pr	neumoniae.								
	III. Heat killed vii	rulent bacteria is tr	ansform	ed.								
	IV. Mice develop	ed resistance to avi	irulent ba	actereia								
	1. I & II	2. II, III	& IV	3. Only II	4.	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 3. Easily degradable 4. Its large size 1. Its complexity 2. Inability to duplicate **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

Assertion (A): DNA is dependent on RNA for the synthesis of proteins.

3. 23 S

3. CH₃ group

2. Watson and Crick

2) 6000 nucleotides

4. Avery and MacLeod.

4) 3.3 x 10⁹ nucleotides

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. RNA polymerase

2. Pyrimidine

Experiment showing semi conservation of DNA is performed by

2) Both A and R are true but R is not the correct explanation of A.

2. RNA viruses are less stable

4. Ribozyme

4. Cytosine

4. RNA can code for DNA

4. Presence of 2'OH in the pentose sugar of RNA.

Catalytic RNA or RNA enzymes are known as

Number of nucleotides in the genome of ξ x 174 is

Wrong statement among the following

1. RNA cannot mutate

3) A is true, R is false

4) A is false, R is true

1. Meselson & Stahl

3. Hershey and Chase

1) 5386 nucleotides

 $3)9.2 \times 10^6$ nucleotides

In RNA thymine replaced by

1. RNAse

1. Putine

3. RNA can code for protein

13.

14.

15.

16.

17.

18.

19.	Tayer performed his experiments of semi conservation of DNA on										
	1. E.coli	2. □ x 174	3. Vicia	faba	4. Drosophila						
20.	True statement regard	ling DNA polyr	nerase is								
	A. Both strands can act	as templates									
	B. Polymerisation is alv	ways in $5' \rightarrow 3'$ d	irection								
	C. On one strand polyn	nerization is in 5	\rightarrow 3' and n anoth	ner strand it is 3'-	→ 5'						
	D. DNA polymerization	n requires no ene	ergy during polyr	merization.							
	1. A & B 2.	B & C	3. C & D	4. A & D	-0,						
21.	'Okazaki fragments''	are			C						
	1. Fragment of DNA	3. Fr	agment s of DNA	on lagging strar	nd						
	3. Template strand	4. Fr	agment of DNA 1	being synthesized	d in $3' \rightarrow 5'$ direction.						
22.	Function of small stre	tch of RNA dur	ring DNA replica	ation is							
	1. Termination		2. Fillin	g gaps							
	3. Protection of replicat	tion fork.	4. Initiation								
23.	'Ori' region in a bacte	erial genome is	used for								
	1. For recombination	2. Replication	on								
	3. Starting of replicatio	n 4. Provide 5	'end for elongat	ion							
24.	Location of Promoter in an operon is										
	1. Immediately upstream to structural genes.2. Immediately downstream to operator genes.										
	3. Between repressor ar	nd operator	4. Upstream	n to repressor gen	ies.						
25.	Lac operon is)									
	1. Polycistronic	2. Monocist	ronic								
	3. Positively regulated 4. Cistron without repressor										
26.	RNA polymerase										
	1. Can recognize 5'→3	-		· ·	strand as template.						
	3. Cannot transcribe ex	ons	4. Is RN	IA dependant.							
27.	Sigma factor helps in										
	1. Termination of trans	•		tion of translation	n						
	3. Identification of pror		•	nerisation							
28.	Termination of transc	-		4 2							
	1. Cap 2.	Splicing	3. Tailing	4. Rho fact	or						

29.	rRNAs are tran	scribed by									
	1. RNA polymer	ase I 2 RNA p	oolymerase II 3 RNA	A polymerase I	II 4. Both I & III						
30.	Nucleotide used	in capping is									
	1. ATP	2. GTP	3. C	ГР	4. TTP						
31.	tRNA is synthes	sized in									
	1. Cytosol	2. Nucleoplasm	3. Nucleolu	s 4. Cytoso	ol & nucleoplasm						
32.	Starting codon	codes for									
	1. Methionine	2. Valine	3. Phenylala	3. Phenylalanine							
33.	Nucleotide abse	nt in termination co	dons is								
	1. Thymine	2. Adenine	3. Guanine	4. Cytosine	-O'						
34.	Charged tRNA	other than methioni	ne enters into								
	1. A site	2. P site	3. Either A	or P site 4. N	Neither P nor A site						
35.	In the absence of	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): I	n bacteria translatio	on and transcription (takes place sin	nultaneously.						
	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	s true									
37.		hydrogen bonds in a	small stretch of DN	A with 20 Ade	enines and 30						
	Guanines										
	1) 50	2) 120	3) 100	4) 130							
38.	In DNA replica	tion after three gene	ration ratio of old an	d new strands	s is						
	1) 1:1	2) 1:3	3) 1:7	4) 1:4							
39.	Number of t RN	NA based on their an	ti codons are								
4	1) 64	2) 20	3) 3	4) 61							
40.	If Adenines are	30% in a DNA, the	percentage of Cytosi	ne 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