BIOLOGY

BOOKS - GR BATHLA & SONS BIOLOGY (HINGLISH)

TRANSCRIPTION AND TRANSLATION

Multiple Choice Questions

1. Who establishment that RNA is the genetic material ?

A. Sidney Brenner

B. Fraenkel Conrate

C. Joshua Lederberg

D. Friedrich Miescher

Answer: B

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2. RNA is not found in :

A. cell sap

B. nucleus

C. ribosomes

D. cytoplasm

Answer: A

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3. RNA is absent in :

A. cytoplasm

B. ribosomes

C. plasmalemma

D. chromosomes

Answer: C

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4. Which of the following molecules moves regularly from the nucleus to the cytoplasm ?

A. RNA

B. DNA

C. Glycogen

D. Chloesterol

Answer: A

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5. RNA plays an important role in :

A. cell division

B. protein synthesis

C. protein digestion

D. carbohydrate synthesis

Answer: B

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6. RNA contains :

A. ribose

B. hexose

C. glucose

D. fructose

Answer: A

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7. Pyrimidines of RNA are represented by :

A. uracil and guanine

B. cytosine and uracil

C. adenine and cytosine

D. thymine and cytosine

Answer: B

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8. One of the following nitrogenous bases is not present in RNA, choose one :

A. Uracil

B. Guanine

C. Cytosine

D. Thymine

Answer: D

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9. RNA has a uracil instead of :

A. guanine

B. thymine

C. cytosine

D. all of these

Answer: B

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10. In RNA, the thymine is replaced by :

A. guanine

B. adenine

C. uracil

D. cytosine

Answer: C

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11. Which purine base is found in RNA ?

A. Uracil

B. Guanine

C. Thymine

D. Cytosine

Answer: B

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12. A riboside is :

A. ribose + base

B. base + phosphate

C. ribose + phosphate

D. ribose + base + phosphate

Answer: A

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13. A ribose nucleotide is :

A. Uracil-Pentose sugar-phosphate

B. Guanine-pentose sugar-phosphate

C. Thymine - pentose sugar-phosphate

D. Cytosine-pentose sugar-phosphate

Answer: A

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14. Adenine + Ribose + Phosphate form :

A. adenosine

B. adenylic acid

C. adenosine diphosphate

D. adenosine triphosphate

Answer: B

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15. Uridine monophosphate is found in :

A. DNA

B. RNA

C. Cell wall

D. Lysosome

Answer: B

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16. All the following descriptions of eukaryotic RNA are true except :

A. RNA is normaly single stranded

B. The ratio of ribose to base equals one

C. Units of uridine equals units of adenine

D. It derives from antiparallel, complementary DNA

Answer: C

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17. The two ends of a RNA molecule are identified as :

A. 5' end and 3' end

B. Head and tail end

C. Reducing and non-reducing end

D. N- terminal end and C-terminal end

Answer: A

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18. Double-stranded RNA is present in :

A. reovirus

B. bacterium

C. chloroplast

D. mitochondrion

Answer: A

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19. Who was awarded Noble prize for synthesis of RNA in 1959

A. Nirenberg

B. S. Ochoa

C. A. Kornberg

D. H.G. Khorana

Answer: B

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20. Nuclear DNA sends information for protein synthesis through :

A. t-RNA

B. r-RNA

C. m-RNA

D. all of these

Answer: C

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21. Molecule into which the coded information in DNA is transcribed is :

A. m-RNA

B. t-RNA

C. r-RNA

D. hn-RNA

Answer: A

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22. Messenger RNA is produced in :

A. Nucleus

B. Ribosomes

C. Golgi apparatus

D. Endoplasmic reticulum

Answer: A

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23. What is synthesised by RNA polymerase ?

A. r-RNA sequence

B. eukaryotic m-RNA

C. prokaryotic r-RNA

D. prokaryotic m-RNA

Answer: B

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24. RNA polymerase II in eukaryotes is responsible for synthesis of :

A. r-RNA sequence

B. t-RNA

C. m-RNA

D. hn-RNA

Answer: C

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25. The type of RNA specifically responsible for directing the proper sequence of amino acids in protein synthesis is :

A. r-RNA sequence

B. t-RNA

C. m-RNA

D. chromosomal RNA

Answer: C

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26. m-RNA is made up of :

A. ribonucleotides

B. ribonucleosides

C. deoxyribonucleotides

D. deoxyribonucleosides

Answer: A

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27. Triplet codon refers to sequence of three bases on :

A. t-RNA

B. m-RNA

C. r-RNA

D. all of these

Answer: B

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28. The maximum synthesis of m-RNA occurs in :

A. cytoplasm

B. ribosome

C. centrosome

D. nucleoplasm

Answer: D

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29. In which direction m-RNA is synthesized on DNA template ?

A. $5' \rightarrow 3'$

B. $3' \rightarrow 5'$

C. both (a) and (b) correct

D. any direction

Answer: A

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30. Length of m-RNA that carries information for complete polypeptide synthesis is :

A. muton

B. codon

C. operon

D. cistron

Answer: D

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31. Mark the correct statement :

A. m-RNA is polycistronic in eukaryotes and monocistronic in prokaryotes

B. m-RNA is polycistronic in prokaryotes and monocistronic in eukaryotes

C. m-RNA is polycistronic in both eukaryotes and prokaryotes

D. m-RNA is monocistronic in both eukaryotes and prokaryotes

Answer: B

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32. Which is soluble RNA ?

A. r-RNA sequence

B. m-RNA

C. r-RNA

D. hn-RNA

Answer: C

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33. Which of the following is smallest RNA ?

A. t-RNA

B. m-RNA

C. r-RNA

D. chromosomal RNA

Answer: A

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34. Which of the following RNAs picks up specific amino acid from amino acid pool in the cytoplasm to ribosome during protein synthesis ?

A. m-RNA

B. t-RNA

C. r-RNA

D. all of these

Answer: B

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35. The function of t-RNA is :

A. production of m-RNA

B. selection of amino acids

C. production of ribosomes

D. production of microsomes

Answer: B

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36. Thymine is present in which of the following ?

A. t-RNA

B. ribosomal RNA

C. mammalian m-RNA

D. prokaryotic m-RNA

Answer: A

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37. Adenine of transfer RNA will pair with :

A. uracil

B. cytosine and uracil

C. thymine

D. guanine

Answer: A

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38. Eukaryotic RNA polymerase III catalyses the synthesis of :

A. m-RNA

B. t-RNA

C. 18S r-RNA

D. introns

Answer: B

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39. Clover leaf model for t-RNA was proposed by :

A. Holley

B. Khorana

C. Lederberg

D. Nirenberg

Answer: A

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40. Which form of RNA has a structure resembling clover leaf ?

A. t-RNA

B. r-RNA

C. hn-RNA

D. m-RNA

Answer: A

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41. Clover leaf secondary structure of t-RNA has anticodon arm, which :

A. contains in its loop three nucleotides of the anticodon

B. contains in its loop three nucleotides of the codon

C. contains in tis no nucleotides

D. both (a) and (b) correct

Answer: A

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42. Ribosome binding site is on :

A. DNA

B. m-RNA

C. r-RNA

D. Clover leaf t-RNA

Answer: D

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43. Three dimensional structure of t-RNA was proposed by :

A. Kim

B. Monod

C. Gamow

D. Hoagland

Answer: A

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44. In three dimensional view, the molecule of t-RNA is :

A. E-shaped

B. S-shaped

C. Y-shaped

D. L-shaped

Answer: D

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45. A sequence of three consecutive bases in a t-RNA molecule which specially binds to a complementary codon sequence in m-RNA is known as :

A. triplet

B. anticodon

C. nonsense codon

D. Termination codon

Answer: B

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46. Anticodons are present on :

A. r-RNA

B. t-RNA

C. mt-RNA

D. m-RNA

Answer: B

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47. Anticodon is a site of :

A. r-RNA

B. m-RNA

C. t-RNA that is bound to m-RNA molecules

D. t-RNA that is not bound to m-RNA moelcules

Answer: C

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48. Which site of a t-RNA molecule, hydrogen bonds to a m-RNA molecule ?

A. codon

B. anticodon

C. 5' end of the t-RNA molecule

D. 3' end of the t-RNA molecule

Answer: B

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49. t-RNA molecules have anticodons that pair complementary to codons in :

A. r-RNA

B. t-RNA

C. m-RNA

D. all of these

Answer: C

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50. Anticodon is a base triplet on :

A. t-RNA complementary to base sequence on r-RNA

B. m-RNA complementary to base sequence on t-RNA

C. t-RNA complementary to base sequence on m-RNA

D. m-RNA complementary to base sequence on r-RNA

Answer: C

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51. Which site of the t-RNA pairs through hydrogen bonding with the triple codes on m-RNA ?

A. Codon

B. 5'end of t-RNA

C. Anticodon

D. 3' end of t-RNA

Answer: C

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52. The codon for anitcodon 3'UUA5' is :

A. 3'AAU5'

B. 3'TTA5'

C. 3'UUA5'

D. 3'UAA5'

Answer: D

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53. If the codon of a m-RNA is AUG what should be its anticodon on t-RNA ?

A. TAC

B. AUG

C. UAC

D. CUA

Answer: C

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54. Anticodon loop of t-RNA contain :

A. 3 paired bases

B. 7 unpaired bases

C. 5 paired bases

D. 5 unpaired bases

Answer: B

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55. Given the antisense strand DNA codon 3'TAC5' . The anticodon that pairs with corresponding m-RNA codon could be :

A. 5'AUG3'

B. 3'CAT5'

C. 5'GUA3'

D. 3'UAC5'

Answer: A

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56. The binding site of t-RNA with m-RNA and amino acids respectively are :

A. m-RNA with DHU loop and amino acid with CCA end

B. m-RNA with CCA end and amino acid with anticodon loop

C. m-RNA with anticodon loop and amino with DHU loop

D. m-RNA with anticodon loop and amino acid with CCA end

Answer: D

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57. Which of the character is not applicable to t-RNA ?

A. It is the largest of the RNAs

B. It is the smallest of the RNAs

C. It has a clover leaf like structure

D. It acts as an adapter for amino acid

Answer: A

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58. Which of the following pairs is correctly matched ?

A. Ribosomal RNA - Carries amino acids to the site of protein synthesis

B. Transcription - Process by which protein is synthesized

C. Translation - Process by which m-RNA carries the information from nucleus to the ribosome

D. Anticodon - Site of t-RNA molecule that contains complementary bases to the triplet code on the m-RNA

Answer: D

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59. What is the main function of t-RNA is relation to protein synthesis ?

A. Identifies amino acids and transport them to ribosomes

B. Inhibits protein synthesis

C. Acts as a proof reader

D. All of the above

Answer: A

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60. Codon of m-RNA and anticodon of t-RNA is made of :

A. a set off two nitrogen bases

B. a set of three out of U,A,C and G

C. a set of three and two respectively

D. three and one nitrogen bases respectively

Answer: B

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61. What is true about t-RNA ?

A. It has five double stranded regions

B. It binds with an amino acid at it 3' end

C. It looks like clover leaf in the three dimensional structure

D. It has a codon at one end which recognises the anticodon on messenger RNA

Answer: B

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62. Most abundant RNA in a cell is :

A. t-RNA

B. r-RNA

C. m-RNA

D. primary RNA

Answer: B

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63. The most stable RNA in the cell is :

A. r-RNA

B. s-RNA

C. r-RNA

D. m-RNA

Answer: A

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64. RNA polymerase I catalyses :

A. t-RNA synthesis

B. r-RNA synthesis

C. m-RNA synthesis

D. initiation in transcription

Answer: B

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65. Ribosomal RNA is synthesized in :

A. ribosome

B. nucleolus

C. lysosome

D. nucleosome

Answer: B

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66. If the nucleolus of the cell is destroyed, which of these in the cell will not be formed ?

A. Ribosomes

B. Lysosomes

C. Microtubules

D. Mitochondria

Answer: A

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67. Specific radioactive identification of ribosomal RNA can be achieved by using $.^{14}C$ labelled :

A. guanine

B. uracil

C. thymine

D. cytosine

Answer: B

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68. The difference between RNA and DNA is of :

A. base only

B. sugar and base

C. phosphate and base

D. sugar and phosphate

Answer: B

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69. Which of the following is not a difference between RNA and DNA ?

A. RNA has 5 bases and DNA has 4

B. RNA has uracil and DNA has thymine

C. RNA has ribose and DNA has deoxyribose

D. RNA is a single polynucleotide strand and DNA is double stranded

Answer: A

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70. RNA differs from DNA in containing :

A. ribose and uracil

B. guanine and adenine

C. uracil and deoxyribose

D. adenine and deoxyribose

Answer: A

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71. DNA and RNA are different milecules as :

A. DNA has uracil and RNA has thymine

B. DNA has thymine and RNA has uracil

C. DNA has cytosine and RNA has guanine

D. DNA is micromolecule and RNA is a macromolecule

Answer: B

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72. Pyrimidine base present in RNA but not in DNA :

A. uracil

B. adenine

C. guanine

D. thymine

Answer: A

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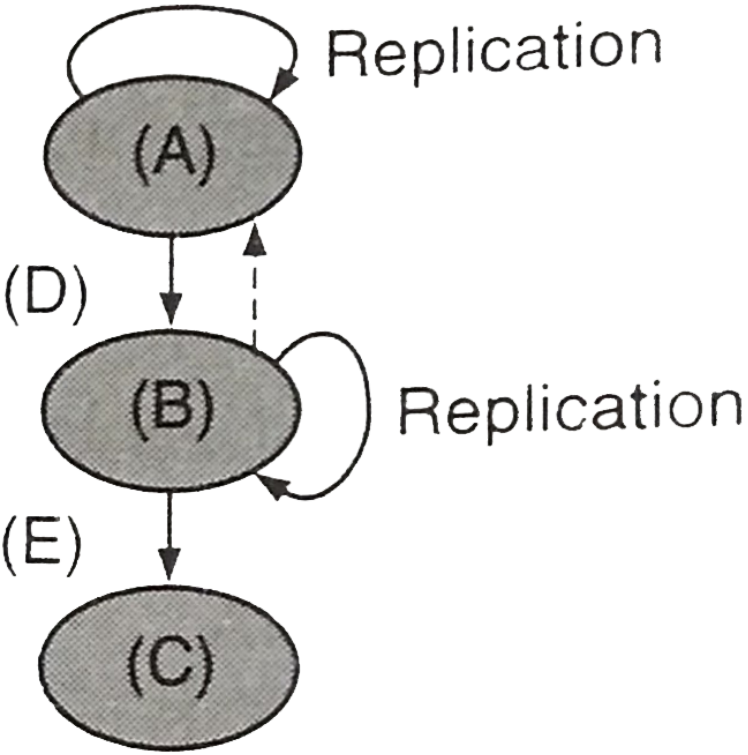
73. The diagram represents the "central dogma " of molecular biology .

Choose the correct combination of labelling :



A. (A)= Protein, (B)=RNA, (C)=DNA,(D)= Translation, (E)= Transcription

B. (A)=RNA,(B)= DNA, (C)= Protein, (D) = Transcription, (E) = Translation

C. (A)=DNA, (B) RNA, (C)= Protein, (D) =Transcription, (E) = Translation

D. (A) = Transcription, (B) = Translaion, (C)= Protein, (D) =DNA, (E) =RNA

Answer: C

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74. Who proposed the central dogma ?

A. Francis Crick

B. Williams Klug

C. Beadle and Tatum

D. Watson and Crick

Answer: A

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75. The 'central dogma' of molecular biology :

A. status that translation precedes transcription

B. states that DNA is template for all RNA production

C. pertains only to prokaryotes because humans are unique

D. states that DNA is a template only for DNA replication

Answer: B

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76. Central dogma in molecular biology is :

A. RNA $\rightarrow$ DNA $\rightarrow$ Protein

B. RNA $\rightarrow$ Protein $\rightarrow$ DNA

C. DNA $\rightarrow$ RNA $\rightarrow$ Protein

D. DNA $\rightarrow$ Protein $\rightarrow$ RNA

Answer: C

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77. The central dogma is not applicable in the case cf:

A. retroviruses

B. all prokaryotes

C. all animal viruses

D. all plant viruses

Answer: A

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78. Information transfer from RNA to DNA is :

A. replication

B. translation

C. transcription

D. reverse transcription

Answer: D

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79. The process of DNA formation from RNA is called :

A. transcription

B. transversion

C. translation

D. reverse transcription

Answer: D

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80. Central dogma of genetic information is modified by the discovery of :

A. Ligase

B. DNA polymerase

C. Reverse transcriptase

D. RNA polymerase

Answer: C

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81. DNA is transcribed by some viral RNA using the enzyme :

A. Ligase

B. Endonuclease

C. DNA polymerase

D. Reverse transcriptase

Answer: D

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82. Through which enzyme can RNA give rise to DNA ?

A. DNA polymerase

B. RNA polymerase

C. Restriction enzyme

D. Reverse transcriptase

Answer: D

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83. Which one of the following enzmes is responsible for the synthesis of DNA from RNA ?

A. DNA ligase

B. DNA polymerase

C. RNA polymerase

D. Reverse transcriptase

Answer: D

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84. Which one of the following makes use of RNA as a template to synthesize DNA ?

A. DNA polymerase

B. RNA polymerase

C. Reverse transcriptase

D. DNA dependant RNA polymerase

Answer: C

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85. Reverse transcriptase is :

A. RNA dependent DNA polymerase

B. DNA dependent RNA polymerase

C. DNA dependent DNA polymerase

D. RNA dependent RNA polymerase

Answer: A

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86. The process of reverse transcription was brougt to light by the work of :

A. Archibald Garrod

B. R.W. Holley and Grover

C. Marshall and W. Nirenberg

D. H.W. Temin and D.Baltimore

Answer: D

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87. Which is related to teminism ?

A. RNA $\rightarrow$ DNA $\rightarrow$ m-RNA $\rightarrow$ Protein

B. DNA $\rightarrow$ RNA $\rightarrow$ Protein

C. $\underset{\underset{\text{DNA}}{\uparrow}}{\text{DNA}} \rightarrow \text{RNA} \rightarrow \text{Protein}$

D. None of the above

Answer: A

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88. The central dogma of protein synthesis in teminism is :

A. g-RNA $\rightarrow$ DNA $\rightarrow$ m-RNA $\rightarrow$ Protein

B. DNA $\rightarrow$ g-RNA $\rightarrow$ m- RNA $\rightarrow$ Protein

C. DNA $\rightarrow$ DNA $\rightarrow$ m-RNA $\rightarrow$ Protein

D. m-RNA $\rightarrow$ g- RNA $\rightarrow$ DNA $\rightarrow$ Protein

Answer: A

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89. Synthesis of DNA over RNA template occurs in :

A. TMV

B. Reovirus

C. T_2 bacteriophage

D. Rous sarcoma virus

Answer: D

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Transcription

1. The genes are responsible for growthe and differentiation in an organism through regulation on :

A. translocation

B. transformation

C. transduction and translation

D. transcription and translation

Answer: D

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2. The processes by which m-RNA is made by DNA and protein by m-RNA are respectively called as :

A. transcription and translation

B. translation and transcription

C. synthesis of m-RNA and protein

D. replication of m-RNA and protein

Answer: A

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3. Synthesis of m-RNA from DNA is termed :

A. transfection

B. transcription

C. transduction and translation

D. transformation

Answer: B

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4. The process by which DNA of the nucleus passes genetic information to the messenger RNA is called :

A. translation

B. translocation

C. transcription

D. transportation

Answer: C

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5. Transcription is the transfer of genetic information from :

A. DNA to m-RNA

B. t-RNA to m-RNA

C. m-RNA to r-RNA

D. Chromosome to cytoplasm

Answer: A

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6. Transcription :

A. requires t-RNAs

B. requires ribosomes

C. produces only m-RNA

D. produces RNA growing from the 5' end to the 3' end

Answer: D

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7. Transcription involves transfer of the genetic information from DNA molecule to :

A. Protein

B. DNA molecule

C. RNA molecule

D. None of these

Answer: C

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8. Transcription in eukaryotes takes place in :

A. matrix

B. cytosol

C. nucleus

D. cytoplasm

Answer: C

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9. Transcriptional control in eukaryotes may involve changes in :

A. chromatin structure

B. amount of chromatin

C. both (a) and (b) correct

D. None of these

Answer: C

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10. Which one is mostly transcribed ?

A. Only RNA sequence

B. Single copy of DNA sequence

C. Highly repetitive DNA sequence

D. Middle repetitive DNA sequence

Answer: B

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11. Transcription requires which of these enzyme ?

A. RNA based RNA polymerase

B. RNA based DNA polymerase

C. DNA based RNA polymerase

D. DNA based DNA polymerase

Answer: C

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12. Transcription unit

A. TATA box

B. CAAT region

C. pollendrous regions with ends with rho factor

D. promoter region and ends in terminator region

Answer: D

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13. Transcription unit

A. TATA box to stop codon

B. TATA box to start point

C. Stan point to stop codon

D. 35 sequence to stan point

Answer: A

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14. During transcription holoenzyme RNA polymerase binds to a DNA sequence and the DNA assumes a saddle like structure at that point. What is that sequence called ?

A. TATA box

B. AAAT box

C. GGTT box

D. CAAT bos

Answer: A

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15. During transcription, the site of DNA molecule at which RNA polymerase binds is called

A. receptor

B. enhancer

C. regulator

D. promoter

Answer: D

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16. A promoter site on DNA :

A. transcribes repressor

B. regulates termination

C. initiates transcription

D. code for RNA polymerase

Answer: C

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17. Which conserved motifs are found in E. coli genes ?

A. TATA box

B. CAAT box

C. Pribnow box

D. All of these

Answer: C

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18. Which of the following is the Pribnow box ?

A. 5'TATAAT 3'

B. 5'TAATTA 3'

C. 5'AATAAT 3'

D. 5'ATATTA3'

Answer: A

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19. Transcription of DNA is aided by

A. Exonuclease

B. Recombinase

C. DNA polymerase

D. RNA polymerase

Answer: D

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20. RNA polymerase contains multiple polypeptide units. For initiating RNA synthesis it requires :

A. $\rho -$ factor

B. $\sigma -$ subunit

C. $\beta -$ subunit

D. spliceosome

Answer: B

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21. Which of the following does not synthesize RNA ?

A. Primase

B. RNA polymerase I

C. Reverse Transcriptase

D. RNA polymerase II

Answer: C

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22. Codes of m-RNA and proteins are :

A. colinear

B. irregular

C. coplanar

D. nonlinear

Answer: A

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23. After a mutation at a genetic locus the character of an organism chagnes due to the change in

A. Protein structure

B. DNA replication

C. Protein synthesis pattern

D. RNA transcription pattern

Answer: D

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24. In a given DNA segment ATACC AGG ACC CCA ACA the first base gets mutated. The affect of this on coding by this DNA segment will result in

A. complete change in the tpe as well as sequence of amino acids.

B. change in the first amino acid only

C. one amino acid less in the protein

D. no change in the sequence

Answer: B

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25. What will be the sequence of nucleotides in m-RNA if DNA have ATTGGC sequence ?

A. TAAGGG

B. UGATCA

C. ATAGCG

D. UAACCG

Answer: D

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26. A DNA strand with nitrogenous base sequence ATTGCC will have :

A. UAACGG

B. ATCGCC

C. ATTGCA

D. UGGACC

Answer: A

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27. If the DNA condons are ATG ATG ATG and a cytosine base is inserted at the beginning , which of the following will result

A. C ATG ATG ATG

B. CAT GAT GAT G

C. A nonsense mutation

D. CA TGA TGA TG

Answer: B

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28. During transcription, if the nucleotide sequence of the DNA strand that is being coded is ATACG, then the nucleotide sequence in the m RNA

would be

A. UATGC

B. TATGC

C. UAUGC

D. TCTGG

Answer: C

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29. The DNA chain acting as template for RNA synthesis has the following order of bases, AGCTTCGA. What will be the order of bases ?

A. TCGAAGCT

B. UGGAAGUC

C. UCGAAGCU

D. UGCUAGCT

Answer: C

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30. If the sequence of bases in DNA is GCTTAGGCAA then the sequence if bases in its transcript will be

A. UAAGCUAC

B. TAAGCTAC

C. CAUCGAAU

D. AUUCGAUG

Answer: A

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31. A region of DNA template strand has the sequence 3'-ATT CGC-5'.What is the sequence of RNA transcribed from this DNA ?

A. 3'-AUUCGC-5'

B. 3'-TAAGCG-5'

C. 5'-UAAGCG-3'

D. 5'-ATTCGC-3'

Answer: C

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32. If the sequence of nitrogen bases of the coding strand of DNA in a transcription unit is $5' - ATGAATG - 3'$, the sequence of bases in its RNA transcript would be

A. UUTCGTTUCCGU

B. AATGGCTTAGGCA

C. UUACGAAUCCGU

D. TTACGAATCCGT

Answer: C

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33. If the sequence of nitrogen bases of the coding strand of DNA in a transcription unit is $5' - ATGAATG - 3'$, the sequence of bases in its RNA transcript would be

A. CAUGUU UAUCGC

B. GTA CAA ATA GCC

C. CAA GAA TAU GCC

D. GUA CAA AUA GCC

Answer: A

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34. Which one of the following sequence represents m-RNA coded from a DNA segment with base pairs as :

GA GC GC ACA

CT CG CG TGT

A. GAGCGCACA

B. CUCCGCUGU

C. CTCGCGTGT

D. CUCCGCUCC

Answer: A

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35. If the sequence of bases in DNA is GCTTAGGCAA then the sequence if bases in its transcript will be

A. ATGC

B. AUCG

C. TAGC

D. TACG

Answer: B

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36. Suppose evolution on earth has occurred in such a way that there are 96 amino acids instead of 20. DNA has 12 different types of bases and DNA synthesis occur in the same way as today. The minimum number of bases per DNA codon would be :

A. 2

B. 3

C. 8

D. 12

Answer: A

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37. Which of the following modifications are necessary for most eukaryotic RNA processing ?

(i) addition of modified nucleotide at the 5' terminal

(ii) cleavage of long precursor RNA into smaller one

(iii) formylation of bases at 3' poly (A) tail

(iv) alteration of incorrect bases through proof reading

Select the correct answer using the codes give below :

A. (i) and (ii)

B. (ii) and (iii)

C. (i) and (iv)

D. (ii) and (iv)

Answer: A

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Genetic Code

1. Sequence of amino acids in a polypeptide is determined by :

A. m-RNA

B. t-RNA

C. r-RNA

D. genetic code

Answer: D

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2. Genetci code translate the language of :

A. RNA into that of DNA

B. RNA into that of proteins

C. Proteins into that of DNA

D. Amino acids into that of RNA

Answer: B

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3. The 'diamond code' was proposed by :

A. J. H. Mathei

B. George Gamow

C. Marshall Nirenberg

D. Har Goving Khorana

Answer: B

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4. Genetic code was discovered by :

A. Watson and Crick

B. Holley and Ochoa

C. Nirenberg and Mathei

D. Holley, Nirenberg and Khorana

Answer: C

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5. A sequence of how many nucleotides in messenger RNA makes a codon for amino acid ?

A. 1

B. 2

C. 3

D. 4

Answer: C

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6. Arrangement of three successive bases in the genetic code signifies :

A. Protein structure

B. plasmids

C. nucleic acid

D. amino acids

Answer: D

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7. A codon consists of :

A. 1 nucleotide

B. 2 nucleotides

C. 3 nucleotides

D. 4 nucleotides

Answer: C

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8. A sequence of how many nucleotides in messenger RNA makes a codon for amino acid ?

A. One

B. Two

C. Three

D. Four

Answer: C

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9. A sequence of how many nucleotides in messenger RNA makes a codon for amino acid ?

A. 1

B. 2

C. 3

D. 4

Answer: C

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10. A triplet codon means :

A. the presence of only three bases in m-RNA

B. a sequence of three nitrogen bases in t-RNA

C. a sequence of three nitrogen bases in r-RNA

D. a sequence of three nitrogen bases in m -RNA

Answer: D

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11. The first deciphering of genetic code throug trinucleotide synthesis was performed by :

A. Severo Ochoa

B. Watson and Crick

C. Beadle and Tatum

D. Marshall and Nirenberg

Answer: D

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12. A codon consists of 3 bases and there are of 4 different kinds of bases in a nucleic acid altogether . How many codons will be there ?

A. 22

B. 60

C. 64

D. 86

Answer: C

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13. In the coding dictionary, there are 64 codons as :

A. genetci code is triplet

B. 64 types of t-RNA are present

C. 64 amino acids are to be coded

D. there are 44 nonsense codons and 20 sense codons

Answer: A

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14. In the genetic code dictionary, how many codons are used to code for all the 20 essential amino acids ?

A. 61

B. 60

C. 20

D. 64

Answer: A

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15. The triplet codes for several amino acids are experimentally determined by :

A. Watson and Crick

B. Breadle and Tatum

C. Lederberg and Tatum

D. Nirenberg and associates

Answer: D

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16. The first codon discovered by Nirenberg and Matthei was :

A. UUU

B. AAAT

C. GGG

D. CCC

Answer: A

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17. The triplet UUU codes for :

A. leucine

B. glycine

C. methionine

D. phenyl alanine

Answer: D

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18. Which one of the following codons for the same information as UGC ?

A. UGU

B. UGA

C. UAG

D. UGG

Answer: A

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19. Which one of the following triplet codes, is correctly matched with its specificity for an amino acid in protein synthesis or as 'start' or 'stop' codon ?

A. UCG- Start

B. UUU-Stop

C. UGU-Leucine

D. UAC-Tyrosine

Answer: D

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20. Usually triplet codons are red in the direction :

A. 3' to 5'

B. 5' to 3'

C. both of these

D. none of these

Answer: B

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21. Which of the following amino acids has only one codon ?

A. Valine

B. Tyrosin

C. Isoleucine

D. Tryptophan

Answer: D

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22. The codon for the initiation of protein synthesis in eukaryotes is :

A. AUG

B. UAA

C. AGU

D. UGA

Answer: A

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23. Which one of the following triplet codons is known as initiation codon ?

A. UGA

B. AUG

C. UUU

D. UAA

Answer: B

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24. AUG codes for :

A. Valine

B. Histidine

C. Methionine

D. Phenylalanine

Answer: C

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25. Initiation of polypeptide chain formation is always brought about at the site of a codon coding for an amino acid called :

A. cysteine

B. isoleucine

C. methionine

D. phenylalanine

Answer: C

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26. The starting t-RNA of prokaryotes is loaded with :

A. valine

B. methionine

C. tryptophan

D. formylated methionine

Answer: D

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27. Identify the sense codon from the following :

A. UAG

B. UAA

C. UGA

D. AUG

Answer: D

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28. During protein synthesis AUG functions as the initiator codon in RNA. What should be the anticodon on the t-RNA molecule that picks up and brings the amino acid specified by this codon ?

A. UAC

B. TAC

C. CAUCGAAU

D. GUA

Answer: A

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29. The nonsense codons help in :

A. inhibition of toxic protein

B. termination of anticodons

C. termination of polypeptide chain

D. formation of long polypeptide chain

Answer: C

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30. The terminator codons are :

A. AUG,UAG,UGA

B. UAC,AUG,UAG

C. DCC,UAA,CAC

D. UAA,UAG,UGA

Answer: D

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31. During protein synthesis in an organism at one point the process comes to a halt. Select the group of the three codons from the following, from which anyone of the three could bring about this halt :

A. UUU,UCC,UAU

B. UUC,UUA,UAC

C. UAG,UGA,UAA

D. UUG,UCA,UCG

Answer: C

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32. UGA,UAG and UAA are called termination codons because use they :

A. terminate anticodon

B. do not specify any amino acid

C. are present at the beginning of m-RNA

D. indicate initiation of polypeptide chain

Answer: B

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33. Which one of the following is a nonsense codon ?

A. UAG

B. UGC

C. UGG

D. UAC-Tyrosine

Answer: A

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34. Which of the following base sequences acts as a terminal codon during protein synthesis ?

A. AUG

B. GCG

C. UAG

D. AGA

Answer: C

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35. The termination signal for protein synthesis comes from :

A. AUU

B. UAA

C. GUG

D. CTT

Answer: B

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36. Which of the following is not a nonsense (stop) codon ?

A. UAA

B. UAG

C. UGA

D. UGG

Answer: D

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37. Consider the following statements :

Assertion (A) : Amber codon is a termination codon .

Reason (R) : If in a m-RNA, a termination codon is present, the protein

synthesis stops abruptly whether the protein synthesis is complete or not.

Now select you answer from code given below :

A. Both (A) and (R) are true and the (R) is the correct explanation of the (A)

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

C. (A) is true statement but (R) is false

D. Both (A) and (R) are false

Answer: B

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38. Which of the following codon is related to UAA and UAG functions ?

A. UUU

B. UGA

C. AUG

D. GUG

Answer: B

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39. All the terminator codons begin with the nucleotide of :

A. uracil

B. adenine

C. guanine

D. cytosine

Answer: A

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40. What would happen if in a gene encoding a polypeptide of 50 amino acids, 25th codon (UAU) is mutated to UAA ?

A. A polypeptide of 49 amino acids will be formed

B. A polypeptide of 25 amino acids will be formed

C. A polypeptide of 24 amino acids will be formed

D. Two polypeptides of 24 and 25 amino acids will be formed

Answer: C

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41. Which one of the following pairs is correctly matched with regard to the codon and the amino acid coded by it ?

A. UUA-Valine

B. AAA-Lysine

C. AUG-Cysteine

D. CCC-Alanine

Answer: B

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42. naturally occurring coding strand composed of alternating C and U residues would result in the formation of

A. a polypeptide containing alternating leu and ser residues

B. a polypeptide containing either leu or ser residues

C. a polypeptide containing only leu residues

D. a polypeptide containing only ser residues

Answer: A

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43. Dr. Khorana and his colleagues synthesized an RNA molecule with repeating sequence of UGN bases (UG UG UG UG UG UG). IT produced a tetrapeptide with alternating sequence of cysteine and valine. It proves that codons for cysteine and valine are :

A. UGU and GUU

B. UGU and GUG

C. UUG and GGU

D. GUG and UGU

Answer: B

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44. Which of the following group of codons code for amino acid serine ?

A. GUU,GUC,GCU and GCC

B. CUU,CUC,CUA and CUG

C. UAU,UAC,UGU and UGC

D. UCU,UCC,UCA and UCG

Answer: D

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45. Identify the correct match betweent he codons and coding functions

:

	Column I		Column II
A	AUG	1	Phenyl alanine
B	UAA	2	Methionine
C	UUU	3	Tryptophan
D	UGG	4	Termination

A. A=1,B=4,C=2,D=3

B. A=2,B=4,C=1,D=3

C. A=4,B=3,C=2,D=1

D. A=4,B=1,C=3,D=2

Answer: B

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46. Which of the following statements about genetic code is correct ?

A. It is triplet, universal, ambiguous and degenerate

B. It is triplet, universal, nonambiguous and degenerate

C. It is triplet, universal, nonambiguous and nondegenerate

D. It is triplet, universal, nonambiguous and nongenerate

Answer: B

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47. Triplet codon in genetics is :

A. fixed

B. degenerative

C. ambiguous

D. nonwobbly

Answer: B

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48. The genetic code :

A. is ambiguous

B. is degenerate

C. is different for prokaryotes and eukaryotes

D. has changed during the course of recent evolution

Answer: B

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49. A degneracy of genetci code was found by :

A. Ochoa

B. Khorana

C. McClintock

D. Bernfield and Nirenberg

Answer: D

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50. When more than one codon code for the same amino acid, this is called as :

A. redundancy of genetic code

B. punctuation in genetic code

C. universal nature of genetic code

D. continuous nature of genetic code

Answer: A

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51. Out of 64 codons , 61 codons code for 20 types of amino acid. It is called

A. wobbling of codon

B. overlapping of genes

C. unversality of codons

D. degeneracy of genetic code

Answer: D

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52. Degeneration of a genetic code is attributed to the :

A. entire codon

B. first member of codon

C. third member of codon

D. second member of a codon

Answer: C

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53. A single amino acid is often coded by more than one triplet code. In most of the cases the first two bases are the same but the third base is different. This feature of the genetic code is called :

A. universality

B. nonambiguity

C. redundancy and degeneracy

D. nonoveralaping and commaless

Answer: C

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54. some amino acids are coded by more than one codon, hence the genetic code is

A. degenerate

B. specific

C. univeral

D. punctuated

Answer: A

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55. The genetic code is said to be degenerate and is universal which means that :

(i) codons are common for higher and lower organisms

(ii) amino acids may have more than one codon

(iii) all amino acids have more than one codon

Out of the above statements, correct statement is :

A. only the (iii) statement is correct

B. (ii) and (iii) are correct

C. (i) and (ii) are correct

D. all are correct

Answer: C

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56. Which one of the following group of codons is called as degenerate codons ?

A. UAA, UAG and UGA

B. AAC, AAG,GAC and CGG

C. GUA,GUG,GCA,GCG and GAA

D. UUA, UUG, CUU, CUC, CUA and CUG

Answer: D

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57. Degency of genetic code is due to functional :

A. 61 codons and 20 amino acids

B. 64 codons and 20 amino acids

C. 20 codons and 20 amino acids

D. 20 codons and 61 amino acids

Answer: A

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58. Two or more codons coding for one amino acid :

A. nonambiguous

B. nonsense codon

C. degeneracy of codon

D. nonoveralpping of codon

Answer: C

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59. Genetic code of nuclear and mitrochondrial DNA is :

A. similar

B. different

C. not workked out so far

D. DNA is not found in mitochondria

Answer: B

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60. An anticodon of t-RNA can recognize more than one codon of m-RNA .

It is :

A. Wobble hypothesis

B. Template hypothesis

C. Gene flow hypothesis

D. Richmond and Lang effect

Answer: A

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61. Wobble hypothesis establishes :

A. peptide chain formation

B. initiation of peptide chain

C. termination of peptide chain

D. economy in t-RNA molecules

Answer: D

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62. Wobble pairing takes place :

A. in some cases between the third base of a codon and that of an anticodon

B. in those rare instances where unequal crossing over takes place for the lack of segment-to -segment pairing

C. under unusual condition between homologous chromosomes of somatic crossing over

D. in radiation-induced base deletion from one strand of DNA molecule so that the complementary counterpart of the other strand exhibits mispairing

Answer: A

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63. The process of altering the code in the DNA sequence, the message reversed is

A. deletion

B. inversion

C. translocation

D. none of these

Answer: B

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64. The single-stranded DNA phage $\phi \times 174$ contains approximately 5400 nucleotides. If an average protein contains 20 amino acids, how many different proteins could this phage DNA code ?

A. 9

B. 10

C. 90

D. 100

Answer: c

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65. H.G. Khorana was awarded the Nobal Prize for :

A. discovering DNA

B. discovering RNA

C. discovering mitochondria

D. genetic code and protein synthesis

Answer: d

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Translation

1. Translation is a process in which :

A. DNA is formed on DNA template

B. RNA is formed on DNA template

C. DNA is formed on RNA template

D. Protein is formed from RNA message

Answer: D

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2. The process of translation is :

A. RNA synthesis

B. protein synthesis

C. DNA synthesis

D. ribosome synthesis

Answer: B

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3. Translation of genetic information results in the synthesis of :

A. DNA

B. hn-RNA

C. m-RNA

D. polypeptide chain

Answer: D

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4. Synthesis of polypeptide over m-RNA is :

A. translation

B. transduction

C. transformation

D. transcription

Answer: A

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5. Choose the wrong statement in the process of protein synthesis

A. After uncoiling of DNA molecule, one strand the m-RNA template for the formation of m-RNA

B. In the presence of DNA polymerase enzyme the m-RNA is formed based on the triplet codes

C. The m-RNA that leaves nucleus reaches cytoplasm and get attached with 30S ribosomal subunit

D. The amino acids are transferred from the niteracellular amino acid pool to the active rebosomes by the t-RNA

Answer: B

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6. Which statement about translation is not true ?

A. There are both start and stop codons

B. It is RNA - directed polypeptide synthesis

C. The same genetic code operates in all organisms

D. An m-RNA molecule can be translated by only one ribosome at a time

Answer: D

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7. Out of the given four combination which one prossess the integrated protein synthesizing machinery :

A. m-RNA,t-RNA and amino acid

B. ribosomes, t-RNA and aminoa cid

C. t-RNA , ribosome , nucleus andn m-RNA

D. ribosomes, t-RNA,m-RNA and amino acid

Answer: D

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8. During translation initiation in prokaryotes, a GTP molecule is needed in :

A. formation of formyl-met-t-RNA

B. binding of 30S subunit of ribosome with m-RNA

C. association of 20S -m-RNA with formyl -met-t-RNA

D. association of 50S subunit of ribosome with initiation complex

Answer: C

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9. Which is not directly involved in protein synthesis ?

A. Initiation

B. termination of anticodons

C. Elongation

D. Transcription

Answer: D

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10. Which of the following pairs is correct ?

A. Mitochondria-Acrosome

B. DNA synthesis -Ribosomes

C. RNA synthesis- Okazaki fragments

D. Protein synthesis - Rough endoplasmic reticulum

Answer: D

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11. Protein synthesis in an animal cell occurs

A. only on the ribosomes present in cytosol

B. on ribosomes present in the nucleolus as well as in cytoplasm

C. on ribosomes present in cytosol as well as in mitochondria

D. only on ribosomes attached to the nuclear envelope and endoplasmic retriculum.

Answer: C

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12. Protein synthesis occurs on :

A. ribosomes

B. lysosomes

C. chloroplasts

D. mitochondria

Answer: A

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13. The enzyme peptidyl transferase of prokaryotes risides in :

A. 30S ribosome

B. 50S ribosome

C. 40S ribosome

D. 60S ribosome

Answer: B

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14. RNA is involved in the biosynthesis of :

A. starch

B. vitamins

C. Proteins into that of DNA

D. nucleic acids

Answer: C

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15. Protein biosynthesis requires all of the following except :

A. ribosomal RNA

B. primer protein

C. messenger RNA

D. peptidyl transferase

Answer: B

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16. Heterogeneous nuclear RNA (hn-RNA) is converted to m-RNA by :

A. splicing

B. capping

C. tailing

D. all of these

Answer: D

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17. How many high energy phosphate bond equivalents are utilized in the process of activation of amino acids for protein synthesis ?

A. one

B. two

C. zero

D. three

Answer: B

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18. The reaction, Amino acid $+$ ATP $\rightarrow$ Aminoacyl -MAP $+$ P-P depicts :

A. Amino acid aasimilation

B. Amino acid transformation

C. Amino acid activation

D. Amino acid translocation

Answer: C

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19. The enzyme aminoacyl synthetase facilitates :

A. joining two neighbouring amino acids on ribosomes

B. insertion of aminoacyl-t-RNA into the ribosome sites

C. adoption of amino acid by a t-RNA molecule of its type

D. transfer of aminoacyl-t-RNA form the ribosomal A site to P site

Answer: C

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20. The first step in the biosynthesis of polypeptide in catalysed by :

A. terminal transferase

B. peptidyl transferase

C. initiation factors (Ifs)

D. aminoacyl-t-RNA synthetase

Answer: D

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21. Activation of an amino acid during protein synthesis requires a participiation of specific molecule of :

A. m-RNA

B. t-RNA

C. r-RNA

D. none of the above

Answer: D

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22. Which of the following step of translation does not consume a high energy phosphate bond

A. Translocation

B. Amino acid activation

C. Peptidyl-transferase reaction

D. Aminoacyl t-RNA binding to A site

Answer: D

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23. In which direction does a polypeptide chain being translated from m-RNA on a ribosome grow ?

A. From N terminus to C terminus

B. From C terminus to N terminus

C. It depends on the RNA being synthesized

D. It depends on the protein being synthesized

Answer: A

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24. The hydrolytic step leading to the release of a polypeptide chain from a ribosome is catalysed by :

A. UAA

B. release factors

C. step codons

D. peptidyl transferase

Answer: D

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25. Which one of the following is catalysed by the presence of enzyme peptidyl transferase ?

A. Peptide bond formation

B. Transfer of a amino acid

C. Transfer of peptide bonds

D. Transfer ofribosomes units

Answer: A

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26. The enzyme that catalyses peptide bonding is located in :

A. central part of transfer RNA

B. smaller subunit of ribosome

C. largest subunit of ribosome

D. none of the above

Answer: C

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27. An aminoacyl synthetase is responsible for :

A. attaching an amino acid group to an organic acid

B. joining an amino acid to a t-RNA

C. formation of a peptide bond

D. none of the above

Answer: B

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28. During protein synthesis anticodon of t-RNA binds with :

A. r-RNA

B. codon of t-RNA

C. codon of m-RNA

D. deoxy nucleoide sequence of DNA

Answer: C

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29. hn-RNA is :

A. useful RNA

B. homonuclear RNA

C. heterogenesis RNA

D. heterogeneous RNA

Answer: D

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30. Which of these is incorrect for translation ?

A. It occurs inside the nucleus

B. It is under operon regulation

C. It occurs inside the cytoplasm

D. Protein are synthesized from it

Answer: A

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31. Protein synthesis differs from photosynthesis in :

A. using solar energy

B. occurs in chloroplasts

C. not using solar energy

D. performed by only autotrophs

Answer: C

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32. Match the following in column I with column II and choose the correct combination :

	Column I		Column II
A	Termination	1	Aminoacyl t-RNA synthetase
B	Translation	2	Okazaki fragments
C	Transcription	3	GTP dependent release factor
D	DNA replication	4	RNA polymerase

A. A=2,B=3,C=1,D=4

B. A=1,B=4,C=4,D=3

C. A=3,B=1,C=4,D=2

D. A=4,B=2,C=1,D=3

Answer: C

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33. A potein inhibitor of protein synthesis that acts as an analogue of aminacyl-t-RNA is :

A. rifampicin

B. promycin

C. mitomyociin C

D. streptomycin

Answer: B

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34. Antibiiotic inhibiting translating in eukaryotes is :

A. penicillin

B. puromycin

C. tetracycline

D. chloromycetin

Answer: B

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35. Which antibiotic inhibits interaction between t-RNA and m-RNA during bacterial protein synthesis ?

A. Neomycin

B. Tetracycline

C. Streptomycin

D. Erythromycin

Answer: B

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36. Wobble hypothesis was proposed by :

A. Crick

B. Watson

C. Pasteur

D. Lavosier

Answer: A

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37. In protein synthesis, adapter t-RNA attaches amino acid at its :

A. G end

B. D-H-U end

C. C-C-A end

D. C-C-C region

Answer: C

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38. Some of the inhibitors of bacterial protein synthesis and their effect are listed in column I and column II below . Match them and choose the correct option from answer key :

	Column I		Column II
A	Chloramphenicol	p	Inhibits binding of aminoacyl t-RNA to ribosome
B	Erythromycin	q	Inhibits interaction between t-RNA and m-RNA
C	Neomycin	r	Inhibits initiation of translation
D	Streptomycin	s	Inhibits peptidyl transferase activity
E	Tetracyclin	t	Inhibits translocation of m-RNA along ribosomes

A. A=p,B=q,C=r,D=t,E=s

B. A=r,B=p,C=t,D=s,E=q

C. A=q,B=r,C=s,D=p,E=t

D. A=s,B=t,C=p,D=q,E=r

Answer: D

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39. Which one of the following pair of codons is correctly mathed with function or the signal for the particular amino acid

A. UAG, UGA -Stop

B. GUU,GCU - Alanine

C. UUA,UCA - Leucine

D. AUG, ACG - Start / Methionine

Answer: A

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40. The sequence of events mentioned below are symbolized by alphabets. Choose the correct answer where the alphabets are matched with the processes :

$$\text{RNA} \xrightarrow{A} \text{DNA} \xrightarrow{B} \text{DNA} \xrightarrow{C} \text{m-RNA} \xrightarrow{D} \text{Polypeptide}$$

A. A= Replication, B=Transformation, C=Transcription, D=Translation

B. A=Reverse transcription, B= Replication, C=Transcription, D=Translation

C. A=Replication , B=Transcription, C=Translation, D=Transduction

D. A=Reverse transcription, B=Translation, C=Transcription, D=Replication

Answer: B

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41. Genetic code consists of :

1. m- RNA
2. Iysosome
3. cytosine and uracil
4. adenine and guanine

Answer codes :

A. 1 and 2 are correct

B. 3 and 4 are correct

C. 1 and 3 are correct

D. 1,2, and 3 are correct

Answer: B

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42. Terminating codons are also called :

A. initiating codons

B. stop signals

C. central dogma

D. none of these

Answer: B

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43. A phenomenon where the third base of t-RNA at its 5' end can pair with a non-complementary base of m-RNA is called :

A. wobbling of codon

B. Universality

C. Colinearity

D. Degeneracy

Answer: A

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44. What is not true for genetic code

A. It is degenerate

B. It is unambiguous

C. It is nearly universal

D. A codon in m-RNA is read in a non-contiguous fashion

Answer: D

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45. Which one is referred to as soluble RNA ?

A. m-RNA

B. t-RNA

C. r-RNA

D. ss-RNA

Answer: B

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46. Which one of the following nitrogenous bases is seen only in RNA ?

A. Adenine

B. Thymine

C. Uracil

D. Cytosine

Answer: C

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47. Transcription of genetic code occurs from DNA molecule to a

A. DNA molecule

B. RNA molecule

C. Protein

D. Both DNA and RNA

Answer: B

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48. mRNA direct the building of proteins through a sequience of

A. exons

B. introns

C. codons

D. anticodons

Answer: C

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49. Whate would be the corrcct base sequence in mRNA for the given DNA strand 5' -AAATGCCTTAAGC- 3'

A. 5'-GCUUAAGGCAUU-3'

B. 5'-UUACGGAATTCG-3'

C. 3'-UUACGGAAUUCG-5'

D. 3'-AAUGCCUUAUCG-5'

Answer: C

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50. From bacteria to men nearly universal code for phenylalanine is :

A. UUA

B. UUG

C. UUU

D. CUU

Answer: C

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51. During transcription, the site of DNA molecule at which RNA polymerase binds is called

A. receptor

B. regulator

C. enhancer

D. promoter

Answer: D

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52. The number of stop codons which do not code for any amino acid is :

A. 1

B. 2

C. 3

D. 4

Answer: C

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53. Which one is not the nonsense codon ?

A. UAA

B. UGA

C. UCA

D. UAG

Answer: C

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54. Which of the followning codons has no t-RNA ?

A. UAU

B. UGU

C. UAA

D. UGC

Answer: C

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55. The number of triplet codons having all the three bases same in 64 triplet codons is :

A. 2

B. 4

C. 6

D. 8

Answer: B

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56. Select the correct bases of DNA, RNA and amino acid of beta chain resulting in sickle-cell anaemia :

DNA	RNA	Amino acid
(a) CTC/GAG	G U G	Glutamic acid
(b) CAC/GTG	G U G	Valine
(c) CAC/GTG	G A G	Valine
(d) CTC/GAG	G U G	Valine
(e) CAC/GUG	G A G	Glutamic acid

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57. What is not true for genetic code

A. It is denerate

B. It is unambiguous

C. It is nearly universal

D. A codon in m-RNA is read in a non-contiguous fashion

Answer: D

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58. Assertion : A monocistronic mRNA can produce several types of polypepitude chains .

Reason : The terminator codon is present on the mRNA.

A. statement A is wrong and B is correct

B. both the statement A and B are correct

C. both the statements A and B are wrong

D. statement A is correct and B is wrong

Answer: A

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59. A polypeptide is assembled on :

A. Ribosome

B. DNA

C. RNA

D. Nucleolus

Answer: A

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60. RNA polymerase II is responsible for transcription of :

A. r-RNA

B. hn-RNA

C. t-RNA

D. sn-RNA

Answer: B

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61. Which of the following sequences will be produced as a result of transcription of this DNA sequence CGATTACAG ?

A. GCUAAUGUC

B. CGUAAUCUG

C. GCTAATGTC

D. GCUAATCTG

Answer: A

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62. Which one of the following does not follow the central dogma of molecular biology ?

A. Pea

B. HIV

C. Mucor

D. Chlamydomonas

Answer: B

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63. In eukaryotic cell transcription, RNA splicing and RNA capping take place inside the

OR

Messenger RNA is produced in

A. Ribosomes

B. Dictyosomes

C. ER

D. Nucleus

Answer: D

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64. Which one of the following statements is not true with reference to the genes of eukaryotic animals ?

A. Many genes have stretches of nitrogen bases the code for amino acids and are called 'exons'

B. Heterogenous nuclear RNA (hn-RNA) is synthesized from split genes

C. RNA polymerase allows the transcription of structural genes to synthesize a polycistronic m-RNA

D. The bases that do not code for amino acids are called 'intons'

Answer: C

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65. In transcription in eukaryotes, heterogenous nuclear RNA (hnRNA)is transcribed by

A. RNA polymerase I

B. RNA polymerase II

C. RNA polymerase III

D. All of these

Answer: B

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66. Menthyl guanosine triphosphate is added to the 5' end of hnRNA in a process of

A. splicing

B. capping

C. tailing

D. none of these

Answer: B

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67. What will be the corect gene expression pathway

A. gene-m-RNA-ranscription-translation - protein

B. transcription-gene-translation-m-RNA-protein

C. gene-transcription-m-RNA-translation-protein

D. gene-translation-m-RNA-transcription-protein

Answer: C

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68. Assertion: RNA produced during transcription in eukaryotic cells cannot be straight away used in photosynethsis.

Reason : RNA splicing phenomena helps in the removel of exons.

A. Both the statements (A) and (B) are wrong

B. Both the statements (A) and (B) are correct

C. Statement (A) is correct and (B) is wrong

D. Statement (A) is wrong and (B) is correct

Answer: C

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69. In bacteria, the formation of peptide bond during translation is effected by

A. lsysozyme

B. ribozyme

C. nucleosome

D. microsome

Answer: B

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70. Consider the following statements :

Assertion (A) : Amber codon is a termination codon .

Reason (R) : If in a m-RNA, a termination codon is present, the protein synthesis stops abruptly whether the protein synthesis is complete or not.

Now select you answer from code given below :

A. I and III are correct

B. I and II are correct

C. I,II and III are correct

D. II and III are correct

Answer: D

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71. During chain elongation peptide bond is formed between carboxyl group of first amino acid and amino group of second amino acid by :

A. aminoacyl transferase

B. aminoacyl synthetase

C. peptidyl transferase

D. chloramphenicol

Answer: C

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72. The codon which has dual function is

Or polypeptide synthesis in prokaryotes is initiated by

A. AUG

B. AAA

C. UGA

D. UUU

Answer: A

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73. Which of the following statements is not correct ?

A. Cysteine is coded by UGU and UGC codons

B. Tyrosine is codedd by UAU and UAC codons

C. UGG codon codes for tryptophan

D. UAA codon codes for lysine

Answer: D

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74. Match the following and select the correct answer :

Column I		Column II	
A	UUU	1	Serine
B	GGG	2	Methionine
C	UCU	3	Phenylalanine
D	CCC	4	Glycine
E	AUG	5	Proline

A. A=3,B=4,C=1,D=5,E=2

B. A=3,B=1,C=4,D=5,E=2

C. A=3,B=4,C=5,D=1,E=2

D. A=2,B=4,C=1,D=5,E=3

Answer: A

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75. The one aspect which is not a salient feature of genetic code, is its being :

A. specific

B. Universality

C. degenerate

D. ambiguous

Answer: D

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76. Which one of the following also acts as a catalyst in a becterial cell

Or Which one of the following rRNA acts as stuctural RNA as well as ribozyme in bacterial

A. sn-RNA

B. hn-RNA

C. 5 sr-RNA

D. 23 sr-RNA

Answer: D

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77. The transcription of any gene is the indication of its :

A. activity

B. induction

C. stimulation

D. hypersensitivity

Answer: A

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78. mRNA direct the building of proteins through a sequience of

A. Introns

B. Codons

C. Exons

D. Anticodons

Answer: B

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79. Methyl guanosine triphosphate is associated with :

A. Tailing

B. Capping

C. Tautomerism

D. Point mutation

Answer: B

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80. Which one the following statements are correct ?

(i) RNA polymerase I transcribes rRNAs

(ii) RNA polymerase II transcribes snRNAs

(iii) RNA polymerase III transcribes hnRNA

(iv) RNA polymerase II transcribes hnRNA

A. (i) and (ii) are correct

B. (i) and (iii) are correct

C. (i),(ii) and (iv) are correct

D. (i) and (iv) are correct

Answer: D

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81. Select the incorrect statement (s) :

1. Six codons do not code for any amino acid.

2. Codon is read in m-RNA in a contiguous fashion.

3. Three codons function as stop codons.

4. The initiator codon AUG codes for methionine

A. 1,2 and 4 are incorrect

B. 1,2, and 3 are incorrect

C. 2,3 and 4 are incorrect

D. 1 alone is incorrect

Answer: d

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82. What will be codons in m-RNA if the DNA codes are ATG-CAG ?

A. TAC-GTC

B. UAC-GUC

C. UCA-TUA

D. TCA-GTC

Answer: B

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83. The enzyme responsible for reverse transcription is

A. transcriptase

B. RNA polymerase

C. DNA polymerase

D. reverse transcriptase

Answer: D

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84. The central dogma of protein synthesis is :

A. DNA RNA protein

B. RNA DNA protein

C. Protein RNA DNA

D. Protein DNA RNA

Answer: A

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85. If coding segement of DNA contains CAC, which amino acid is synthesized during translation ?

A. Valine

B. Glutamicacid

C. Methionine

D. Leucine

Answer: A

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86. In E. coli, the transcription is terminated by :

A. H-factor

B. rho-factor

C. RNA polymerase

D. DNA polymerase

Answer: B

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87. Sequence of amino acids in a polypeptide is determined by :

A. r-RNA

B. t-RNA

C. m-RNA

D. sn-RNA

Answer: C

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88. A terminator codon called opal is :

A. UAA

B. UUU

C. UAG

D. UGA

Answer: D

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89. Choose the anticodon present on t-RNA that carries the amino acid methionine :

A. UAC

B. AUG

C. GCU

D. UGC

Answer: A

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90. Removal of RNA polymerase III from nucleoplasm will affect the synthesis of

Or Eukaryotic RNA Polymerase III catalyse the synthesis of

A. m-RNA

B. r-RNA

C. t-RNA

D. hn-RNA

Answer: C

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91. If one strand of DNA has the nitrogenous base sequence as ATCTG, what would be the complementary RNA strand sequence ?

A. TTAGU

B. UAGAC

C. AACTG

D. ATCGU

Answer: B

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92. Select the correct statement regarding protein synthesis :

A. When the small subunit of the ribosome encounters and m-RNA the process of translation begins

B. Peptidase catalyses the formation of peptide bond

C. URTs are present betweent the start codon and stop codon

D. At the end of translation the release factor binds to the initiation codon

Answer: A

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93. Which among the following codons not have t-RNAs ?

A. AUG

B. GGG

C. UUU

D. Stop codon

Answer: D

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94. To which of the following factors, RNA polymerase binds transiently to initiate transcription

A. rho

B. beta

C. sigma

D. gamma

Answer: C

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95. The enzyme (s) responsible for the transcription of snRNA in eukaryotes is/are

A. RNA polymerase I

B. RNA polymerase I and II

C. RNA polymerase III

D. RNA polymerase III

Answer: D

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96. The pressence and position of which one of the followihng defines the template and coding strands in a trasncription unit

A. Inducer

B. Operator

C. Promoter

D. Repressor

Answer: C

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97. Read following statements (1-4).

1. In transcriptoin, adenine pairs with uracil.

2. Regulation of lac operon by repressor is referred to as positive regulation.

3. The human genome has approximately 50,000 genes.

4. Haemophilia is a sex - linked recessive disease.

How many of the above statements are right ?

A. Two

B. Three

C. Four

D. One

Answer: A

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98. Amino acid binding site of t-RNA is :

A. 5' end

B. 3' end

C. TΨ C loop

D. DHU loop

Answer: B

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99. Polypeptide synthesis in prokaryotes is intiated by :

A. UGA

B. UUG

C. GUU

D. AUG

Answer: D

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100. Dr. Hargovind Khorana deuced the code for which of the following amino acids

A. Serine and leucine

B. Isoleucine and leucine

C. Valine and glutamine acid

D. Phenylalanine and methionine

Answer: A

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101. 3, AAA TGC GCG ATA 5' is the sequence of nucleotides on a gene after transcription the mRNA formed against it and the sequence of bases in

the corresponding binding anticondons will be

A. 5' UAU CGC GCA UUU 3' and

3'AUA-GCG-CGU-AAA 5'

B. 5' UUU ACC TUG UAU 3' and

3'AAA-UGG-UAC-AUA 5'

C. 5'UAU GUT CCA UUU 3' and

3'AUA-CAU-GGU-AAA 5'

D. 5'UAU GUT CCA UUU3' and

3' AUA-CAU-GGU-AAA 5'

Answer: C

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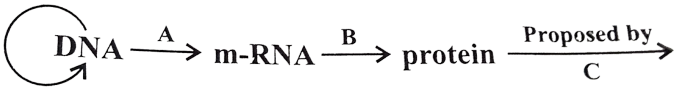
102. The diagram shows an important concept in the genetic implicatio of DNA. Fill in the blanks A to C.



A. A-transcription B-translation C- Francis Crick

B. A-translation B-extension C- Rosalind Franklin

C. A-transcriptoin B-replication C-James Watson

D. A-translation B-transcription C-Erevin Chargaff

Answer: A

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103. The most unstable RNA is

A. soluble RNA

B. ribosomal RNA

C. messenger RNA

D. heterogeneous RNA

Answer: D

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104. Read the statements A and B and select the correct option :

Statement A : Synthesis of m-RNA takes place in 5'-3' direction.

Statement B : Reading of m-RNA is always in 3'-5' direction.

A. Both the statements are wrong.

B. Statement A is wrong, B is correct.

C. Statement B is wrong, A is correct

D. Both the statements A and B are correct.

Answer: C

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105. Select the correct option :

A.

Direction of RNA synthesis	Direction of reading of the template DN
$3' - 5'$	$3' - 5'$

B.

Direction of RNA synthesis	Direction of reading of the template DN
$5' - 3'$	$3' - 5'$

C.

Direction of RNA synthesis	Direction of reading of the template DN
$3' - 5'$	$5' - 3'$

D.

Direction of RNA synthesis	Direction of reading of the template DN
$5' - 3'$	$5' - 3'$

Answer: B

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106. Which triplet codon does not have t-RNA associated with it ?

A. UAA

B. UUA

C. UUU

D. AUU

Answer: A

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107. Read the following statements and choose the correct opton.

I. RNA polymerase associates transiently with 'Rho' factor to initiate transcription.

II. In bacteria, transcription and translation takes place in the same compartment.

III. RNA polymerase I is responsible for transcription of t-RNA.

IV. When hn-RNA undergoes capping process, adenylate residues are added at 3' end in a template indepedent manner.

V. h-RNA is the precursor of m-RNA.

A. II only is correct

B. I and IV only are correct

C. II and V only are correct

D. III and IV only are correct

Answer: C

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108. An eukaryotes, RNA polymerase II transcribes :

A. t-RNA

B. hn-RNA

C. 18S r-RNA

D. 28S r-RNA

Answer: B

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109. The region of DNA sequence that provides binding site for RNA polymerase is :

A. promoter

B. terminator

C. structural gene

D. origin sequence

Answer: A

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110. During transcription, if the nucleotide sequence of the DNA strand that is being coded is ATACG, then the nucleotide sequence in the m RNA would be

A. UATGC

B. TATGC

C. UAUGC

D. TATGG

Answer: C

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111. Formation of polysome does not require :

A. r-RNA

B. m-RNA

C. t-RNA

D. sn-RNA

Answer: D

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112. If the sequence of bases in the coding strand of a double stranded NDA is 5' -GTTCGAGTC-3' , the sequence of bases in its transcript will be :

A. 5'-GACUCGAAC-3'

B. 5'-CAAGCUCAG=3'

C. 5'-GUUCGAGUC3'

D. 5'-CUGAGCUUG-3'

Answer: C

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113. Which codong is not an indicator of completion of protein synthesis ?

A. UAG

B. AUG

C. UAA

D. UGA

Answer: B

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114. Which of the following types of RNA act as adapter molecule ?

A. t-RNA

B. r-RNA

C. m-RNA

D. pre m-RNA

Answer: A

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115. Which of the following genetic code has a dual functions- coding met and acts as initiator codon ?

A. UUU

B. UAG

C. UAA

D. AUG

Answer: D

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116. The codon AUG has dual function. It is an initiation /codon and also codes for :

A. serine

B. methionine

C. phenylalanine

D. formaldehyde

Answer: B

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117. The enzyme that catalyses transcription of RNA in bacteria :

A. DNA polymerase

B. RNA polymerase I and II

C. RNA polymease II

D. DNA dependent RNA polymerase

Answer: D

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118. The t-RNA anticodon 3' - UAC-5' will pair with the m-RNA codon :

A. 5'-AUU-3'

B. 5'-UAC-3'

C. 5'-AUG-3'

D. 3'-GUA-5'

Answer: C

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119. The precursor of eukaryotic m-RNA is

A. 5sr-RNA

B. t-RNA

C. r-RNA

D. hn-RNA

Answer: D

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120. RNA polymerase -1 transcribes eukaryotic ribosome which does not consists of :

A. 5S r-RNA

B. 28S r-RNA

C. 18S r-RNA

D. 5.8s R-RNA

Answer: A

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121. In processing of eukaryotic hn-RNA, during protein synthesis tailing involves _ _ _ _ of RNA:

A. removal of introns

B. addition of adenylate residues at 3' end

C. addition of methyl guanosine triphosphate at 3' end

D. addition of methyl guanosine triphosphate at 5' end

Answer: B

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122. A complex of attached to a single of RNA is known as

A. Polymer

B. Polysome

C. Polypeptide

D. Okazaki fragment

Answer: B

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123. Which one of the following is the starter codon ?

A. UAA

B. UAG

C. AUG

D. UGA

Answer: C

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124. Which of the following r-RNAs acts as structural RNA as well as ribozme in bacteria ?

A. 23S r-RNA

B. 5.8S r-RNA

C. 5S r-RNA

D. 18S r-RNA

Answer: A

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