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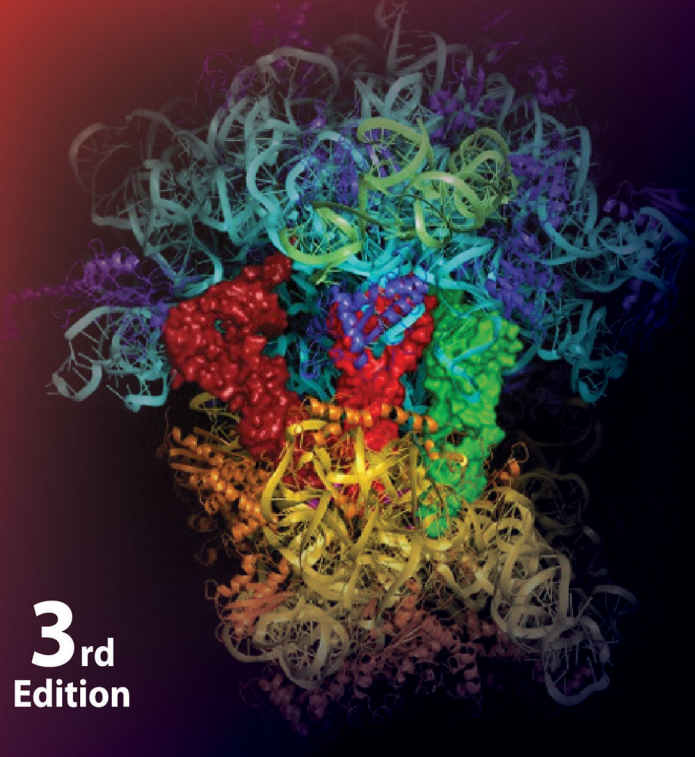
MCQs in Biochemistry



3rd Edition

MCQs

RC Gupta

JAYPEE

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Chemistry of Nucleotides and Nucleic Acids

4

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1. An oxy group is attached to carbon number two of:

A. Cytosine
B. Uracil
C. Thymine
D. All of the above

(*Ref. 1, p. 296*)

2. A methyl group is attached to carbon number five of:

A. Adenine
B. Guanine
C. Thymine
D. Cytosine (*Ref. 1, p. 296*)

3. The following nitrogen atom of purines is attached to the sugar in nucleosides:

A. Nitrogen 1
B. Nitrogen 3
C. Nitrogen 7
D. Nitrogen 9 (*Ref. 1, p. 296*)

4. A nitrogenous base that does *not* occur in mRNA is:

A. Cytosine
B. Thymine
C. Uracil
D. All of the above

(*Ref. 1, pp. 295-297*)

5. In cyclic AMP, phosphate is attached to the following carbon atoms of ribose:

A. 1 and 5
B. 2 and 5
C. 3 and 5
D. 1 and 3 (*Ref. 1, p. 297*)

6. In nucleotides, phosphate is attached to sugar by:

A. Salt bond
B. Hydrogen bond
C. Ester bond
D. Glycosidic bond

(*Ref. 1, p. 299*)

7. Cyclic AMP can be formed from:

A. AMP
B. ADP
C. ATP
D. All of the above

(*Ref. 1, p. 297*)

1 D 2 C 3 D 4 B 5 C 6 C 7 C

8. The nitrogenous base in inosine monophosphate is:
A. Ionone B. Inulin
C. Hypoxanthine D. Xanthine (*Ref. 1, p. 305*)

9. In some metabolic pathways, UDP is present in combination with:
A. Glucose B. Glucuronic acid
C. Galactose D. All of the above
(*Ref. 2, pp. 264, 276, 277*)

10. A substituted pyrimidine base of pharmacological value is:
A. 5-Iododeoxyuridine B. Cytosine arabinoside
C. 5-Fluorouracil D. All of the above
(*Ref. 1, p. 299*)

11. A synthetic pyrimidine nucleoside of pharmacological value is:
A. 6-Mercaptopurine B. 6-Thioguanine
C. 6-Azaguanine D. 6-Azauridine (*Ref. 1, p. 299*)

12. The "transforming factor" discovered by Avery, McLeod and McCarty was later found to be:
A. mRNA B. tRNA
C. DNA D. None of the above
(*Ref. 1, p. 311*)

13. In DNA, the complementary base of adenine is:
A. Guanine B. Cytosine
C. Uracil D. Thymine (*Ref. 2, p. 75*)

14. In DNA, three hydrogen bonds are formed between:
A. Adenine and guanine B. Adenine and thymine
C. Guanine and cytosine D. Thymine and cytosine
(*Ref. 2, p. 75*)

15. The diameter of the double helix is 2 nm in:
A. A-DNA B. B-DNA
C. Z-DNA D. None of the above
(*Ref. 1, p. 403*)

16. Twelve base pairs are present in each turn of the helix in:
A. A-DNA B. B-DNA
C. Z-DNA D. None of the above
(*Ref. 2, p. 83*)

---

8 C 9 D 10 C 11 D 12 C 13 D 14 C 15 B 16 C

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17. Circular DNA is present in:
A. Retroviruses
B. Nucleus
C. Mitochondria
D. None of the above
(*Ref. 1, p. 314*)

18. Left-handed double helix is present in:
A. Z-DNA
B. A-DNA
C. B-DNA
D. None of the above
(*Ref. 2, p. 76*)

19. Right-handed double helix is present in:
A. A-DNA and Z-DNA
B. B-DNA and Z-DNA
C. A-DNA and B-DNA
D. All the three pairs (*Ref. 2, p. 76*)

20. Nuclear DNA is present in combination with:
A. Histones
B. Nonhistones
C. Both of the above
D. Neither of the above
(*Ref. 1, p. 313*)

21. The pyrimidine bases in RNA are:
A. Cytosine and uracil
B. Cytosine and thymine
C. Thymine and uracil
D. Any of these pairs
(*Ref. 1, p. 314*)

22. Number of guanine and cytosine residues is equal in:
A. mRNA
B. tRNA
C. DNA
D. None of the above
(*Ref. 1, p. 311*)

23. Alkalis *cannot* hydrolyse:
A. mRNA
B. tRNA
C. rRNA
D. DNA (*Ref. 1, p. 314*)

24. 7-Methylguanosine triphosphate cap is present at the:
A. 5′-End of tRNA
B. 3′-End of tRNA
C. 5′-End of mRNA
D. 3′-End of mRNA
(*Ref. 1, p. 317*)

25. Poly-A tail is present at:
A. 5′-End of mRNA
B. 3′-End of mRNA
C. 5′-End of tRNA
D. 3′-End of tRNA
(*Ref. 1, p. 317*)

---

17 C 18 A 19 C 20 C 21 A 22 C 23 D 24 C 25 B

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26. Heterogeneous nuclear RNA is the precursor of:
A. mRNA B. tRNA
C. rRNA D. All of the above
(*Ref. 1, p. 318*)

27. Codons are present in:
A. Template strand of DNA B. mRNA
C. tRNA D. rRNA (*Ref. 2, p. 551*)

28. Amino acid is attached to tRNA at:
A. 5′-End B. 3′-End
C. Anticodon D. DHU loop (*Ref. 1, p. 367*)

29. The terminal nucleotide sequence is CCA at the:
A. 5′-End of tRNA B. 3′-End of tRNA
C. 5′-End of mRNA D. 3′-End of mRNA
(*Ref. 1, p. 368*)

30. In eukaryotes, 40 S and 60 S subunits of ribosomes combine to form:
A. 70 S ribosomes B. 80 S ribosomes
C. 100 S ribosomes D. None of the above
(*Ref. 1, p. 373*)

31. In prokaryotes, the ribosomal subunits are:
A. 30 S and 40 S B. 40 S and 50 S
C. 30 S and 50 S D. 40 S and 60 S (*Ref. 1, p. 378*)

32. A nucleotide that forms a high-energy intermediate for lipid synthesis is:
A. ADP B. GDP
C. UDP D. CDP (*Ref. 1, p. 294*)

33. A purine base is present in all the following coenzymes *except*:
A. NAD B. NADP
C. FMN D. FAD (*Ref. 1, pp. 50-51*)

34. The following is involved in RNA processing:
A. rRNA B. snRNA
C. mRNA D. tRNA (*Ref. 1, p. 319*)

35. Translation can be inhibited by:
A. hnRNA B. siRNA
C. 7S RNA D. snRNA (*Ref. 1, pp. 319-320*)

---

26 A 27 B 28 B 29 B 30 B 31 C 32 D 33 C 34 B 35 B

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36. The number of adenine and thymine bases is equal in:
A. DNA B. mRNA
C. tRNA D. rRNA (*Ref. 1, p. 311*)

37. The number of purine bases and pyrimidine bases is equal in:
A. DNA B. mRNA
C. tRNA D. rRNA (*Ref. 1, p. 311*)

38. The number of hydrogen bonds between adenine and thymine in DNA is:
A. One B. Two
C. Three D. Four (*Ref. 1, p. 312*)

39. The complementary base of adenine in RNA is:
A. Thymine B. Cytosine
C. Guanine D. Uracil (*Ref. 1, p. 314*)

40. Pseudouridine is present in:
A. hnRNA B. mRNA
C. tRNA D. rRNA (*Ref. 1, p. 320*)

41. Dihydrouracil is present in:
A. hnRNA B. mRNA
C. tRNA D. rRNA (*Ref. 1, p. 320*)

42. The number of nucleotides in a tRNA molecule is about:
A. 25 B. 50
C. 75 D. 200 (*Ref. 2, p. 81*)

43. 60 S ribosomal subunit contains all the following *except*:
A. 5 S rRNA B. 5.8 S rRNA
C. 18 S rRNA D. 28 S rRNA (*Ref. 1, p. 318*)

44. Extranuclear DNA is present in:
A. Ribosomes B. Endoplasmic reticulum
C. Lysosomes D. Mitochondria
(*Ref. 2, p. 6*)

45. Extranuclear DNA:
A. Does not encode proteins
B. Encodes proteins which are used in ribosomes
C. Encodes proteins which are used in respiratory chain
D. Encodes proteins which can be used anywhere in the cell
(*Ref. 1, p. 331*)

---

36 A 37 A 38 B 39 D 40 C 41 C 42 C 43 C 44 D 45 C

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46. Mitochondrial DNA is present in:
A. Bacteria B. Viruses
C. Eukaryotes D. All of the above (*Ref. 2, p. 6*)

47. The following is synthesized in the form of a large precursor in eukaryotes:
A. tRNA B. rRNA
C. mRNA D. All of the above
(*Ref. 1, p. 359*)

48. Ribothymidine is present in:
A. DNA B. tRNA
C. rRNA D. hnRNA (*Ref. 1, p. 320*)

49. DNA contains all the following *except*:
A. Adenine B. Thiamin
C. Cytosine D. Guanine (*Ref. 1, p. 311*)

50. Thymine may be present in:
A. snRNA B. mRNA
C. tRNA D. rRNA (*Ref. 1, p. 320*)

51. DHU loop is present in:
A. hnRNA B. mRNA
C. tRNA D. rRNA (*Ref. 2, p. 82*)

52. The only correct statement about pseudouridine is:
A. It is present in rRNA
B. It contains dihydrouracil
C. It contains deoxyribose
D. The base and sugar are joined by C—C bond (*Ref. 2, p. 82*)

53. Ten base pairs are present in one turn of the helix in:
A. A-DNA B. B-DNA
C. C-DNA D. Z-DNA (*Ref. 2, p. 76*)

54. Double helical DNA is unwound on:
A. Raising the temperature
B. Lowering the temperature
C. Exposure to X-rays
D. Exposure to gamma radiation (*Ref. 1, p. 312*)

55. Transfer RNA transfers:
A. Information from DNA to ribosomes
B. Information from mRNA to cytosol
C. Amino acids from cytosol to ribosomes
D. Proteins from ribosomes to cytosol (*Ref. 2, p. 81*)

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46 C 47 D 48 B 49 B 50 C 51 C 52 D 53 B 54 A 55 C

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