

## Questions with Answer Keys

MathonGo

## Q1 - 2024 (01 Feb Shift 1)

If one strand of a DNA has the sequence ATGCTTCA, sequence of the bases in complementary strand is:

- (1) CATTAGCT
- (2) TACGAAGT
- (3) GTACTTAC
- (4) ATGCGACT

## Q2 - 2024 (01 Feb Shift 2)

The number of tripeptides formed by three different amino acids using each amino acid once is \_\_\_\_\_.

## Q3 - 2024 (27 Jan Shift 1)

Two nucleotides are joined together by a linkage known as :

- (1) Phosphodiester linkage
- (2) Glycosidic linkage
- (3) Disulphide linkage
- (4) Peptide linkage

## Q4 - 2024 (27 Jan Shift 2)

Which structure of protein remains intact after coagulation of egg white on boiling?

- (1) Primary
- (2) Tertiary
- (3) Secondary
- (4) Quaternary

## Q5 - 2024 (29 Jan Shift 1)

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## Questions with Answer Keys

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Match List I with List II

LIST-I

(Substances)

A.Ziegler catalyst

B.Blood Pigment

C.Wilkinson catalyst

D.Vitamin B<sub>12</sub>

LIST-II

(Element Present)

I.Rhodium

II. Cobalt

III.Iron

IV.Titanium

Choose the correct answer from the options given below:

(1) A-II, B-IV, C-I, D-III

(2) A-II, B-III, C-IV, D-I

(3) A-III, B-II, C-IV, D-I

(4) A-IV, B-III, C-I, D-II

## Q6 - 2024 (29 Jan Shift 1)

Type of amino acids obtained by hydrolysis of proteins is :

(1)  $\beta$ (2)  $\alpha$ (3)  $\delta$ (4)  $\gamma$ 

## Q7 - 2024 (29 Jan Shift 1)

Number of compounds among the following which contain sulphur as heteroatom is \_\_\_\_\_

Furan, Thiophene, Pyridine, Pyrrole, Cysteine, Tyrosine

## Q8 - 2024 (29 Jan Shift 2)

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## Questions with Answer Keys

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Match List I with List II

List I (Bio Polymer)		List II (Monomer)	
A.	Starch	I.	nucleotide
B.	Cellulose	II.	$\alpha$ -glucose
C.	Nucleic acid	III.	$\beta$ -glucose
D.	Protein	IV.	$\alpha$ -amino acid

Choose the correct answer from the options given below :-

- (1) A-II, B-I, C-III, D-IV
- (2) A-IV, B-II, C-I, D-III
- (3) A-I, B-III, C-IV, D-II
- (4) A-II, B-III, C-I, D-IV

## Q9 - 2024 (30 Jan Shift 1)

Sugar which does not give reddish brown precipitate with Fehling's reagent is:

- (1) Sucrose
- (2) Lactose
- (3) Glucose
- (4) Maltose

## Q10 - 2024 (30 Jan Shift 2)

The total number of correct statements, regarding the nucleic acids is

- RNA is regarded as the reserve of genetic information.
- DNA molecule self-duplicates during cell division
- DNA synthesizes proteins in the cell.
- The message for the synthesis of particular proteins is present in DNA
- Identical DNA strands are transferred to daughter cells.

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## Questions with Answer Keys

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## Q11 - 2024 (31 Jan Shift 1)

Match List I with List II

	List - I		List - II
A.	Glucose /NaHCO <sub>3</sub> /Δ	I.	Gluconic acid
B.	Glucose /HNO <sub>3</sub>	II.	No reaction
C.	Glucose/HI/ Δ	III.	n-hexane
D.	Glucose / Bromine water	IV.	Saccharic acid

Choose the correct answer from the options given below:

(1) A-IV, B-I, C-III, D-II

(2) A-II, B-IV, C-III, D-I

(3) A-III, B-II, C-I, D-IV

(4) A-I, B-IV, C-III, D-II

## Q12 - 2024 (31 Jan Shift 2)

A compound (x) with molar mass  $108 \text{ g mol}^{-1}$  undergoes acetylation to give product with molar mass  $192 \text{ g mol}^{-1}$ . The number of amino groups in the compound (x) is \_\_\_\_\_

## Q13 - 2024 (31 Jan Shift 2)

From the vitamins A, B B<sub>1</sub>, B<sub>6</sub>, B<sub>12</sub>, C, D, E and K, the number vitamins that can be stored in our body is \_\_\_\_\_

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Questions with Answer Keys

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Answer Key

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**Q1** (2) mathongo /// math **Q2** (6) /// mathongo **Q3** (1) mathongo /// mc **Q4** (1) o /// mathongo

**Q5** (4) mathongo /// math **Q6** (2) /// mathongo **Q7** (2) mathongo /// mc **Q8** (4) o /// mathongo

**Q9** (1) mathongo /// math **Q10** (3) /// mathongo **Q11** (2) mathongo /// mc **Q12** (2) /// mathongo

**Q13** (5) thongo /// mathongo /// mathongo /// mathongo /// mathongo /// mathongo

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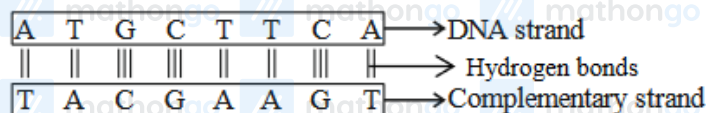
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## Solutions

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Q1

Adenine base pairs with thymine with 2 hydrogen bonds and cytosine base pairs with guanine with 3 hydrogen bonds.

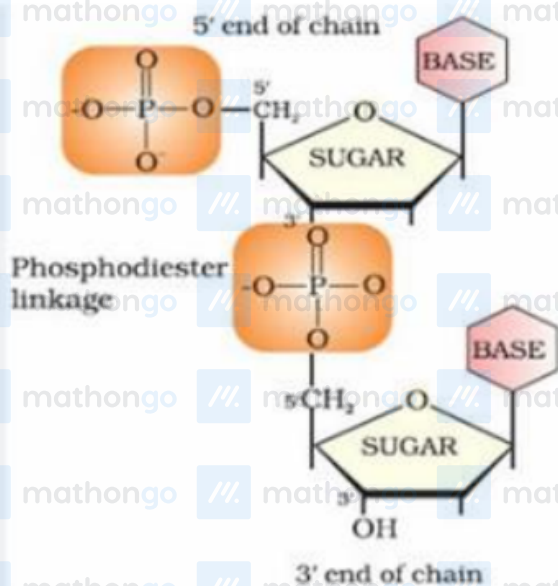


Q2

Let 3 different amino acid are A, B, C then following combination of tripeptides can be formed-  
ABC, ACB, BAC, BCA, CAB, CBA

Q3

Phosphodiester linkage



Q4

Boiling an egg causes denaturation of its protein resulting in loss of its quaternary, tertiary and secondary structures.

Q5

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## Solutions

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Ziegler catalyst  $\rightarrow$  Titanium

Blood pigment  $\rightarrow$  Iron

Wilkinson catalyst  $\rightarrow$  Rhodium

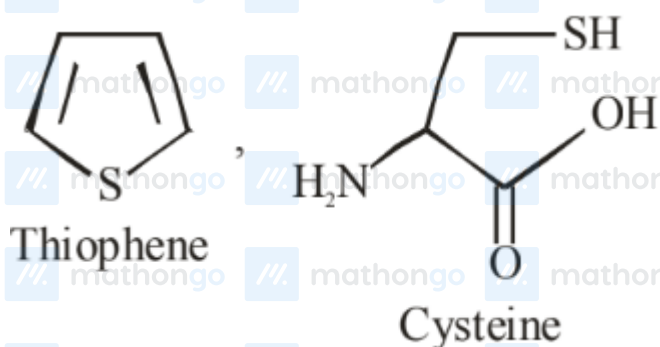
Vitamin B<sub>12</sub>  $\rightarrow$  Cobalt

Q6

Proteins are natural polymers composed of  $\alpha$ -amino acids which are connected by peptide linkages.

Hence proteins upon acidic hydrolysis produce  $\alpha$ -amino acids.

Q7



Q8

A-II, B-III, C-I, D-IV Fact based.

Q9

Sucrose do not contain hemiacetal group.

Hence it does not give test with Fehling solution.

While all other give positive test with Fehling solution

Q10

A. RNA is regarded as the reserve of genetic information. (False)

B. DNA molecule self-duplicates during cell division. (True)

C. DNA synthesizes proteins in the cell. (False)

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## Solutions

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D. The message for the synthesis of particular proteins is present in DNA. (True)

E. Identical DNA strands are transferred to daughter cells. (True)

Q11

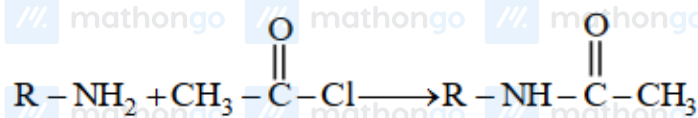
Glucose  $\xrightarrow{\text{NaHCO}_3}$  no reaction

Glucose  $\xrightarrow[\Delta]{\text{HNO}_3}$  saccharic acid

Glucose  $\xrightarrow[\text{HI}]{\Delta}$  n-hexane

Glucose  $\xrightarrow[\Delta]{\text{Br}_2}$  Gluconic acid

Q12



Gain in molecular weight after acylation with one  $-\text{NH}_2$  group is 42.

Total increase in molecular weight = 84

$\therefore$  Number of amino group in  $x = \frac{84}{42} = 2$

Q13

Vitamins A, D, E, K and B<sub>12</sub> are stored in liver and adipose tissue.

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