DPP
DAILY PRACTICE PROBLEMS

Class : XIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 7

Topic :- Biomolecules

1 **(d)**
Primary metabolities includes amino acids, sugars etc. They play a major role in physiological processes

2 **(a)**
Sucrose is a non-reducing sugar. It consists of one glucose and one fructose moiety, and is the main transporting sugar in plants.

3 **(d)**
All of the above. Double sugar is sucrose (table sugar) and milk sugar is lactose. Sugar in germinating seeds is also an example of double sugar

4 **(d)**
Based on the nature of *R* group, there are many amino acids

5 **(c)**
Carbohydrates are the products of photosynthesis, which is carried out by photosynthetic bacteria, green algae and green plant cells.

6 **(a)**
Amino acids have a central four valence carbon atom, called the alpha (α) carbon to which are attached (i) an amino group ($-NH_2$) on one side, (ii) a carboxyl groups ($-COOH$) on the other side, (iii) a hydrogen atom (H) on the third side and (iv) a variable group symbolised by *R* on the fourth side. Out of them, NH_2 and COOH are involved in peptide bond formation

7 **(b)**
Starch remain stored in chloroplasts and amyloplasts in plant cells

8 **(b)**
Each strand appears like a helical staircase. Each step of ascent is represented by a pair of bases. At each step of ascent, the strand turns the pitch would be 34Å. The rise per base pair would be 3.4Å. this form of DNA with the above mentioned salient features is called B-DNA

9 **(a)**

The catalytic efficiency of two different enzymes can be compared by the K_m value.

10 **(a)**

When the inhibitor closely resembles the substrate in its molecular structure and inhibits the activity of the enzyme, it is known as competitive inhibitor. Due to its close structural similarity with the substrate, the inhibitor competes with the substrate for the substrate-binding site of the enzyme.

Consequently, the substrate cannot bind and as a result, the enzyme action declines, *e.g.*, inhibition of succinic dehydrogenase by malonate which closely resembles the substrate succinate in structure. Such competitive inhibitors are often used in the control of bacterial pathogens

11 **(a)**

Cellular pool consists of both organic and inorganic compounds. The relative percentage of each of these is as follow:

Water – 80%

Protein – 12%

Lipids – 3.0%

Nucleic acids – 2.0%

Carbohydrates – 1.0%

Inorganic salt – 1.0%

12 **(c)**

Five forms of DNA have been reported A, B, C and D forms are right handed, while the Z-DNA is left handed

13 **(c)**

Adult human haemoglobin consists of 4 subunits (2α, 2β)

15 **(d)**

Nuclease is an enzyme that breaks phosphodiester bonds in nucleic acid molecules. It is the most specific enzyme as it functions at specific sites (between specific nucleotides) on the nucleic acid molecule.

16 **(b)**

Chemical compounds, which are found in the acid insoluble fraction are called biomacromolecules or macromolecules

17 **(b)**

Lipids are generally, water insoluble because they are non-polar. They dissolve in non-polar organic solvents, such as ether, chloroform, acetone and benzene. They disperse in water uniformly as minute droplets forming an emulsion

18 **(b)**

The nucleotide is formed by the union of a phosphate group with a nucleoside. A nucleoside contains a sugar molecule along with an organic nitrogenous base. Thus, a nucleotide contains a organic nitrogenous base (purine or pyrimidine) along with a sugar molecule and a phosphate group, *i.e.*,
Nucleoside=Sugar molecule+Organic nitrogenous base.
Nucleotide=Nucleoside+Phosphate group.

19 **(a)**

Cofactor is a non-protein component essential for the normal catalytic activity of an enzyme. Cofactors may be organic molecule or inorganic ions.

20 **(c)**

Water has structural and chemical properties that make it particularly suitable for its role in living cells. Every water molecule is capable of forming four **hydrogen bond** with nearby water molecules. Because of this strong attraction, a great deal of heat is separate water molecules from each other.

ANSWER-KEY										
Q.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A.	**d**	**a**	**d**	**d**	**c**	**a**	**b**	**b**	**a**	**a**
Q.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
A.	**a**	**c**	**c**	**b**	**d**	**b**	**b**	**b**	**a**	**c**