BIOMOLECULES

Multiple Choice Questions

CHEMISTRY

Vikasana 2013 - 14

1) Which one is not fibrous protein?

a) Globulin
b) Collagen
c) keratin
d) actin

CHEMISTRY

2)Casein contained in milk is a/an

a) Carbohydrates
b) Lipid
c) Protein
d) Important molecules

CHEMISTRY

3) Which of the following has an imino(>NH)group instead of amino group(-NH2)?

a) Proline
b) Isoleucine
c) Tyrosine
d) Serine

CHEMISTRY

4) RNA contains

a) Ribose sugar and thymine
b) Ribose sugar and Uracil
c) Deoxyribose sugar and Uracil
d) Deoxyribose sugar and thymine

CHEMISTRY

5) A compound give negative test with ninhydrin and positive test with benedict's solution. The compound is

a) A protein

b) An amino acid

c) A lipid

d) A monosaccharide

CHEMISTRY

6) Raffinose is

a) Disaccharide
b) Monosaccharide
c) Trisaccharide
d) None of these

CHEMISTRY

7) Insulin is

a) Protein
b) An amino acid
c) A carbohydrate
d) A lipid

CHEMISTRY

8) Complete hydrolysis of cellulose gives

a) D-fructose

b) D-ribose

c) D-glucose

d) L-glucose

CHEMISTRY

9) The change in optical rotation of freshly prepared solution of glucose is known as

a) Tautomerism
b) Racemization
c) Specific rotation
d) Mutarotation

CHEMISTRY

10) Which of the following compounds, when heated at 483k turns to caramel?

a) Glucose
b) Sucrose
c) Fructose
d) Lactose

CHEMISTRY

11) There are 20 naturally occurring amino acids. The maximum number of tripeptides that can be obtained are

a) 8000

b) 6470

c) 7465

d) 5360

CHEMISTRY

12) Which amino acid has imidazole ring?

a) Alanine
b) Leucine
c) Trysoine
d) Histidine

CHEMISTRY

13) Iscoeletric point is

a) Specific temperature

b) Suitable concentration of amino acid

c) Hydrogen ion concentration that does not allow migration of amino acid under electric field

d) Melting point of amino acid under the influence of electric field

CHEMISTRY

14) Proteins when heated with conc. Nitric acid give a yellow color. This is

a) Hoppe's test
b) Acid base test
c) Biuret's test
d) Xanthoprotic test

CHEMISTRY

15) The change in optical rotation with time of freshly prepared solution of sugar(with enzymes) is known as

a) Specific rotation
b) Inversion
c) Rotator motion
d) Mutarotation

CHEMISTRY

16) A nucleotide consists of

a) Base and sugar
b) Sugar and phosphate
c) Base, Sugar and phosphate
d) Base and phosphate

CHEMISTRY

17) Gene is a segment of

a) DNA
b) Protein
c) mRNA
d) rRNA

CHEMISTRY

18) insulin production of its action in human body are responsible for the level of diabetes. This compound belongs to which of the following categories?

a) A coenzyme
b) A hormone
c) An enzyme
d) An antibiotic

CHEMISTRY

19) When glucose reacts with bromine water, the main product is

a) Acetic acid
b) Saccharic acid
c) Glyceraldehydes
d) Gluconic acid

CHEMISTRY

20) Nucleic acids are polymers of

a) Nucleosides
b) Globulins
c) Nucleons
d) Nucleotides

CHEMISTRY

21) Night blindness may be caused by the deficiency of vitamin

a) A

b) B

c) C

d) D

CHEMISTRY

22) The number of amino acids in insulin is

a) 21
b) 574
c) 51
d) 5733

CHEMISTRY

23) Which of the following contains cobalt?

a) Vitamin-A
b) Vitamin-C
c) Vitamin-B12
d) Vitamin-K

CHEMISTRY

24) Amylo pectin is a polymer of

a) α-D-glucose
b) α-D-fructose
c) lactose
d) amylase

CHEMISTRY

25) The term anomers of glucose refers to

a) isomers of glucose that differ in differ in configuration at carbons one and four(C-1 and C-4)
b) a mixture of(D) glucose and (L) glucose
c) enantiomers of glucose
d) isomers of glucose that differ in configuration at carbons one(C-1)

CHEMISTRY

26) The reason for double helical structure of DNA is operation of

a) Van der waals forces
b) Dipole-dipole interaction
c) Hydrogen bonding
d) Electro static attraction

CHEMISTRY

27) The pyrimidine bases present in DNA are

a) Cytosine and adenine
b) Cytosine and guanine
c) Cytosine and thymine
d) Cytosine and Uracil

CHEMISTRY

28) Which of the following is example of ketohexose?

a) Mannose
b) Galactose
c) Maltose
d) Fructose

CHEMISTRY

29) RNA and DNA are chiral molecules their chirality is due to

a) L-sugar components
b) Chiral bases
c) D-sugar component
d) Chiral phosphate ester units

CHEMISTRY

30) Which one of the following is a peptide hormone?

a) Glucagon
b) Testosterone
c) Thyroxin
d) Adrenaline

CHEMISTRY

31) Methyl α-D glucoside and methyl –β-D glucoside are

a) Epimers
b) Anomers
c) Enantiomers
d) Conformational diastereomers

CHEMISTRY

32) Which functional group participates in disulphide bond formation in proteins?

a. Thiolactone
b. Thiol
c. Thioether
d. Thioester

CHEMISTRY

33) Which one of the following bio molecules is insoluble in water?

a) α-keratin
b) hemoglobin
c) Ribonuclease
d) Adenine

CHEMISTRY

34) Number of chiral carbon atoms in β-D-(+)-glucose is

a) Five
b) Six
c) Three
d) Four

CHEMISTRY

35) Which of the following set consists of only essential amino acid?

a) Alanine, tyrosine, cysteine
b) Leucine, phenyl alanine, tryptophan
c) Alanine, glutamine, lysine
d) Leucine, proline, glycine

CHEMISTRY

36) Which of the following is a conjugated protein?

a. Phospho protein
b. Glycoprotein
c. Chromoprotein
d. All of these

CHEMISTRY

37) Which one of the following sets of monosaccharide's forms sucrose?

a) α D-galactopyranose and α D-glucopyranose
b) α D- glucopyranose β D fructofuranose
c) β- D giucopyranose and α D- fructofuranose
d) α D- galactopyranose β D fructofuranose

CHEMISTRY

38) Glucose molecule reacts with ‘X’ number of molecules of phenyl hydrazine to yield osazone. The value of ‘X’ is

a) Four
b) One
c) Two
d) Three

CHEMISTRY

39) Which base is present in RNA but not in DNA?

a) Uracil
b) Cytosine
c) Guanine
d) Thymine

CHEMISTRY

40) Which one of the following statement is not true regarding (+) lactose?

a) (+) lactose is a β-glycoside formed by the union of molecule of D-(+) glucose and a molecule of D-(+) galactose

b) (+) lactose is a reducing sugar and does not exhibit mutarotation

c) (+) lactose, contains 8-OH groups

d) On hydrolysis,(+) lactose gives equal amount of D-(+)glucose and D-(+)-galactose

CHEMISTRY

41) Glycogen is a branched chain polymer of α-D-glucose units in which chain is formed by C1—C4 glycosidic linkage whereas branching occurs by the formation of C1-C6 glycosidic linkage. Structure of glycogen is similar to _____.

- (i) Amylose
- (ii) Amylopectin
- (iii) Cellulose
- (iv) Glucose

CHEMISTRY

42) Which of the following polymer is stored in the liver of animals?

a) Amylose
b) Cellulose
c) Amylopectin
d) Glycogen

CHEMISTRY

43) Sucrose (cane sugar) is a disaccharide. One molecule of sucrose on hydrolysis gives _____.

a) 2 molecules of glucose

b) 2 molecules of glucose + 1 molecule of fructose

c) 1 molecule of glucose + 1 molecule of fructose

d) 2 molecules of fructose

CHEMISTRY

44) Which of the following acids is a vitamin?

a) Aspartic acid

b) Ascorbic acid

c) Adipic acid

d) Saccharic acid

CHEMISTRY

45) Which of the following statements is not true about glucose?

a) It is an aldohexose.

b)On heating with HI it forms *n*-hexane.

c)It is present in furanose form.

d) It does not give 2,4-DNP test.

CHEMISTRY

46) Each polypeptide in a protein has amino acids linked with each other in a specific sequence. This sequence of amino acids is said to be _____.

a) primary structure of proteins.

b) secondary structure of proteins.

c) tertiary structure of proteins.

d) quaternary structure of proteins.

CHEMISTRY

47) Which of the following B group vitamins can be stored in our body?

a) Vitamin B_1

b) Vitamin B_2

c) Vitamin B_6

d) Vitamin B_{12}

CHEMISTRY

48) Which of the following bases is not present in DNA?

a) Adenine

b) Thymine

c) Cytosine

d) Uracil

CHEMISTRY

49) Which of the following reactions of glucose can be explained only by its cyclic structure?

a) Glucose forms pentaacetate.

b) Glucose reacts with hydroxylamine to form an oxime.

c) Pentaacetate of glucose does not react with hydroxylamine.

d) Glucose is oxidised by nitric acid to gluconic acid.

CHEMISTRY

50) Based on reducing or non-reducing property, Sucrose is a _____.

a) monosaccharide

b) disaccharide

c) non-reducing sugar

d) reducing sugar

CHEMISTRY

51) Which of the following carbohydrates are branched polymer of glucose?

a) Amylose

b) Amylopectin

c) Glycogen

d)Cellulose

CHEMISTRY

52) Which of the following monosaccharides are present as five membered cyclic structure (furanose structure)?

a) Glucose

b) Ribose

c) Manose

d) Galactose

CHEMISTRY

53) In fibrous proteins, polypeptide chains are held together by ___.

a) Van der Waals forces

b) Hydrogen bonds

c) Disulphide linkage

d) Both (b) and (c)

CHEMISTRY

54) Which of the following are purine bases?

a) Guanine

b) Adenine

c) Thymine

d) Both (b) and (a)

CHEMISTRY

55) Which of the following terms are correct about enzyme?

a) Dinucleotides

b) Nucleic acids

c) Amino acid.

d) Biocatalysts

CHEMISTRY

56) Proteins are found to have two different types of secondary structures viz. α-helix and β-pleated sheet structure. α-helix structure of protein is stabilised by :

a) Peptide bonds

b) van der Waals forces

c) Hydrogen bonds

d) Dipole-dipole interactions

CHEMISTRY

57) DNA and RNA contain four bases each. Which of the following bases is not present in RNA?

a) Adenine

b) Uracil

c) Thymine

d) Cytosine

CHEMISTRY

58) Dinucleotide is obtained by joining two nucleotides together by phosphodiester linkage. Between which carbon atoms of pentose sugars of nucleotides are these linkages present?

a) 5′ and 3′

b) 1′ and 5′

c) 5′ and 5′

d) 3′ and 3′

CHEMISTRY

59) Lysine,  is _____.

a) α-Amino acid

b) Basic amino acid

c) Amino acid synthesised in body

d) β-Amino acid

CHEMISTRY

60) Proteins can be classified into two types on the basis of their molecular shape i.e., fibrous proteins and globular proteins.
Example of globular proteins is :

a)Collagen

b)Albumin

c)Keratin

d)Myosin

CHEMISTRY