TELANGANA UNIVERSITY
S.S.R. DEGREE COLLEGE, NIZAMABAD (C.C:5029)
II SEMESTER INTERNAL ASSESSMENT I EXAMINATIONS
BIOTECHNOLOGY QUESTION BANK

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1) Which of the following Bio molecules simply refers to as "Staff of life"?

(a) Lipids

(b) Proteins

(c) Vitamins

(d) Carbohydrates

Sol: (d) Carbohydrates.

2) Which of the following is the simplest form of carbohydrates?

(a) Carboxyl groups

(b) Aldehyde and Ketone groups

(c) Alcohol and Carboxyl groups

(d) Hydroxyl groups and Hydrogen groups

Sol: (b) Aldehyde and Ketone groups.

3) Which of the following monosaccharides is the majority found in the human body?

(a) D-type

(b) L-type

(c) LD-types

(d) None of the above

Sol: (a) D-type.

4) Which of the following is the most abundant biomolecule on the earth?

(a) Lipids

(b) Proteins

(c) Carbohydrates

(d) Nucleic acids.

Sol: (c) Carbohydrates.

5) Which of the following are the major functions of Carbohydrates?

(a) Storage

(b) Structural framework

(c) Transport Materials

(d) Both Storage and structural framework

Sol: (d) Both Storage and structural framework.

6) Which of the following is the general formula of Carbohydrates?

(a) $(C_4H_2O)n$

(b) $(C_6H_2O)n$

(c) $(CH_2O)n$

(d) $(C_2H_2O)n$ COOH

Sol: (c) $(CH_2O)n$.

7 Which of the following proteins was first sequenced by Frederick Sanger?

(a) Myosin

(b) Insulin

(c) Myoglobin

(d) Haemoglobin

Sol: (b) Insulin

8. Which of the following statements is true about proteins?

(a) Proteins are made up of amino acids.

(b) Proteins are essential for the development of skin, teeth and bones.

(c) Protein is the only nutrient that can build, repair and maintain body tissues.

(d) All of the above

Sol: (d) All of the above

9. How many amino acids make up a protein?

(a) 10

(b) 20

(c) 30

(d) 50

Sol:(b) 20

10. What is a bond between amino acids called?

(a) Ionic bond

(b) Acidic bond

(c) Peptide bond

(d) Hydrogen bond

Sol: (c) Peptide bond

11 The nature of an enzyme is

1. Carbohydrate
2. Lipid
3. Vitamin
4. Protein

12. What information does a Lineweaver-Burk plot provide that a typical Michaelis-Menten plot does not?

1. Vi
2. Km
3. Vmax
4. None of these answers

13. Which of the following best describes the class of enzymes that break bonds by generating a new double bond or ring structure rather than by hydrolysis or oxidation?

1. Ligases
2. İsomerases
3. Transferases
4. Lyases

14. Which of these is not a lipid?

(a) Fats

(b) Oils

(c) Proteins

(d) Waxes

Answer: (c)

15. Beta-oxidation of fatty acids occurs in

(a) Peroxisome

(b) Peroxisome and Mitochondria

(c) Mitochondria

(d) Peroxisome, Mitochindria and ER

Answer: (C)

16. An example of _____ is Carnauba wax

(a) Soft wax

(b) Liquid wax

(c) Hard wax

(d) Archaebacterial wax

Answer: (c)

17. Which of the following enzyme catalyzes the first step of glycolysis?
a) Hexokinase
b) Pyruvate kinase
c) Glucokinase
d) Phosphofructokinase-1

18. . What is the general term used for the anaerobic degradation of glucose to obtain energy?
a) Anabolism
b) Oxidation
c) Fermentation
d) Metabolism

19. . Whenever the cell's ATP supply is depleted, which of the following enzyme's activity is increased?
a) Hexokinase
b) Pyruvate kinase
c) Glucokinase
d) Phosphofructokinase-1

20. Cleavage of Fructose 1, 6-biophosphate yields _____
a) Two aldoses
b) Two ketoses
c) An aldose and a ketose
d) Only a ketose

21. Glycolysis converts _____
a) Glucose into pyruvate
b) Glucose into phosphoenolpyruvate
c) Fructose into pyruvate
d) Fructose intophosphoenolpyruvatATP

22. ATP Produced in aerobic glycolysis from 1 molecule of glucose

A 2

B 3

C 4

D 10

23. ATP Produced in anerobic glycolysis from 1 molecule of glucose

A 2

B 3

C 4

D 10

24. Which of the following is not an important precursor of glucose in animals?
a) Lactate
b) Pyruvate
c) Glycerol
d) Glucose 6-phosphate
Answer: d

25. Which of the following statements is false about gluconeogenesis?
a) From the hydrolysis of tri-acyl-glycerol, fatty acids can be used as a carbon source
b) From red blood cells, lactate can be used as a carbon source
c) From the hydrolysis of tri-acyl-glycerol, glycerol is converted to glucose in gluconeogenesis
d) From muscle vigorous muscle activity, lactate can be used as a carbon source
Answer: a

26. Which enzyme catalyzes the conversion of pyruvate to oxaloacetate?
a) Pyruvate carboxylase
b) Pyruvate dehydrogenase
c) Pyruvate kinase
d) Phosphofructokinase-1
Answer: a

27. Gluconeogenesis involves the conversion of _____
a) Glucose to pyruvate
b) Pyruvate to glucose
c) Phosphoenolpyruvate to glucose
d) Pyruvate to fructose

Answer: b

28. **Product of Krebs cycle essential for oxidative phosphorylation is _____**

(a) NADPH and ATP

(b) Acetyl CoA

(c) CO_2 and oxaloacetate

(d) NADH and $FADH_2$

Answer: (d)

29. A single molecule of glucose generates _____ molecules of acetyl CoA, which enters the Krebs cycle.

(a) 4

(b) 3

(c) 2

(d) 1

Answer: (c)

30. _____ accepts hydrogen from malate

(a) FAD

(b) NAD

(c) NADP

(d) FMN

Answer: (b)

31. Which of the intermediate of the Kreb's cycle is utilised in the formation of amino acids?

(a) Citric acid

(b) Malic acid

(c) Isocitric acid

(d) α-ketoglutaric acid

Answer: (d)

32. Krebs cycle occurs in aerobic respiration due to

(a) Electron transport chain requires aerobic conditions to operate

(b) Oxygen is a reactant

(c) Oxygen has a catalytic function

(d) All of the above

Answer: (a)

33. Acetyl CoA is formed from pyruvate by_____ reaction

(a) Dehydration

(b) Reduction

(c) Oxidative decarboxylation

(d) Dephosphorylation

Answer: (c)

34. Which of the following is not formed during the Krebs cycle?

(a) Lactate

(b) Isocitrate

(c) Succinate

(d) Both (a) and (b)

Answer: (a)

35. The entry of pyruvate into the TCA cycle is inhibited by the presence of a high cellular concentration of

(a) Pyruvate

(b) NADH

(c) Coenzyme A

(d) AMP

Answer: (b)

36. ATP synthesis is powered by

(a) Coenzyme motive force

(b) cAMP

(c) proton gradient

(d) GTP hydrolysis

Answer: (c)

37. Fats after absorption, present in the circulation as

(a) VLDL

(b) HDL

(c) LDL

(d) Chylomicron

Answer: (d)

38. Which one of the following is an essential fatty acid?

(a) Linolenic acid

(b) Palmitic acid

(c) Linoleic acid

(d) both (a) and (c)

Answer: (d)

39. Which of the following is a saturated fatty acid?

(a) Linoleic acid

(b) Erucic acid

(c) Palmitic acid

(d) Oleic acid

Answer: (c)

40. **Which of the following undergoes β-oxidation?**

(a) Polyunsaturated fatty acids

(b) Saturated fatty acids

(c) Monounsaturated fatty acids

(d) All of the above

Answer: (d)

41. **What happens during transamination reaction?**

A. Ammonia is liberated

B. Amino group is transferred

C. Amino group is converted

D. all of the above

42. Which of the following acts as a central molecule when transamination and deamination occur simultaneously?

A. Cysteine

B. Glutamate

C. Oxaloacetate

D. Alpha-ketoglutarate

43. Which of the following amino acid do not participate in the transamination reaction?

A. Lysine

B. Valine

C. Threonine

D. Both A and C

Short Answers.

1. What are carbohydrates?

2. What is enzyme inhibhition?

3. What is Glycolysis?

4. What is ETC?

5. What is Beta oxidation?