Biochemistry Unit II

Practice MCQ For Govt Pharmacist Exam, in this article we will solve, Practice MCQ on the topic, Lipid metabolism under the subject Biochemistry of second semester. Read following article for your reference.

Lipid Metabolism » PHARMACAREERS

1. Beta-oxidation is the process by which fatty acids are broken down into:

a) Glucose

b) Amino acids

c) Acetyl CoA

d) Ketone bodies (initially)

2. The primary location for beta-oxidation of fatty acids is the:

a) Cytoplasm

b) Nucleus

c) Mitochondria (matrix)

d) Endoplasmic reticulum

3. Each cycle of beta-oxidation releases a molecule of acetyl CoA, NADH, and FADH2. True or False?

a) True

b) False

4. Acetyl CoA from beta-oxidation can enter the citric acid cycle for further energy production. True or False?

a) True

b) False

5. When carbohydrate intake is low and fatty acid breakdown is high, the liver produces ketone bodies as an alternative fuel source for some tissues, particularly:

a) Muscle tissue

b) Liver tissue

c) Nervous system tissue

d) All of the above (depending on metabolic state)

6. The three main ketone bodies are:

a) Glucose, pyruvate, and lactate

b) Acetoacetate, acetone, and beta-hydroxybutyrate

c) Triglycerides, cholesterol esters, and phospholipids

d) Carnitine, palmitoyl CoA, and malonyl CoA

7. Ketoacidosis is a dangerous condition that can develop in uncontrolled diabetes due to excessive production of ketone bodies and a buildup of acids in the blood. True or False?

a) True

b) False

8. De novo fatty acid synthesis refers to the synthesis of fatty acids from:

a) Existing fatty acids

b) Ketone bodies

c) Simple carbohydrates (glucose)

d) Amino acids

9. The primary site for de novo fatty acid synthesis is the:

a) Mitochondria

b) Cytoplasm

c) Nucleus

d) Endoplasmic reticulum

10. Cholesterol is an important molecule with various biological functions, including:

a) Energy storage

b) Membrane structure and function

c) Hormone synthesis

d) All of the above

11. The liver can convert cholesterol into bile acids, which are important for:

a) Energy production

b) Fat digestion and absorption

c) Hormone regulation

d) Immune function

12. Cholesterol can also be converted into steroid hormones such as:

a) Insulin and glucagon

b) Testosterone and estrogen

c) Thyroid hormones

d) Growth hormone

13. Vitamin D is synthesized in the skin from a cholesterol derivative upon exposure to sunlight. True or False?

a) True

b) False

14. Hypercholesterolemia refers to:

a) Low blood sugar levels

b) High blood cholesterol levels

c) Abnormal blood protein levels

d) Excessive ketone body production

15. Atherosclerosis is a disease characterized by the buildup of plaque in arteries, which can lead to heart attack and stroke. High LDL cholesterol is a major risk factor for atherosclerosis. True or False?

a) True

b) False

16. Fatty liver disease (steatosis) is a condition where excess fat accumulates in the liver. True or False?

a) True

b) False

17. Obesity is a complex condition characterized by excessive body fat accumulation. It is a major risk factor for several chronic diseases, including diabetes, heart disease, and some cancers. True or False?

a) True

b) False

18. Which of the following statements about carnitine is TRUE?

a) It is a vitamin required for fatty acid transport into the mitochondria for beta-oxidation.

b) It is a hormone that regulates cholesterol synthesis.

c) It is a building block of proteins.

d) It is a waste product of fatty acid metabolism.

19. What is the main function of triglycerides?

a) Components of cell membranes

b) Signaling molecules in cellular communication

c) Primary source of energy for cellular processes

d) Insulators and energy storage molecules

20. Which organ plays a central role in both cholesterol synthesis and breakdown?

a) Kidneys

b) Muscles

c) Liver

d) Pancreas

21. Which of the following is NOT a general reaction of amino acid metabolism?

(a) Transamination

(b) Phosphorylation

(c) Deamination

(d) Decarboxylation

22. During transamination, the amino group of an amino acid is transferred to:

(a) Another amino acid

(b) Water

(c) Carbon dioxide

(d) Glucose

23. The primary product of deamination is:

(a) Ammonia

(b) Urea

(c) Keto acid

(d) Carbon dioxide

24. Decarboxylation of an amino acid results in the formation of:

(a) An amine

(b) An amide

(c) An amine and CO2

(d) A ketogenic acid

25. The urea cycle occurs primarily in the:

(a) Liver

(b) Kidneys

(c) Muscles

(d) Brain

26. Which of the following is a precursor for the formation of urea in the urea cycle?

(a) Glutamate

(b) Aspartate

(c) Arginine

(d) All of the above

27. A deficiency in the enzyme ornithine transcarbamoylase can lead to:

(a) Phenylketonuria

(b) Alkaptonuria

(c) Cystinuria

(d) Ornithine carbamoyltransferase deficiency

28. Hyperammonemia is a symptom associated with disorders of the:

(a) Urea cycle

(b) Heme catabolism

(c) Phenylalanine metabolism

(d) Tyrosine metabolism

29. Which of the following is NOT a characteristic symptom of phenylketonuria (PKU)?

(a) Intellectual disability

(b) Skin rash

(c) Light hair and eyes

(d) Jaundice

30. Alkaptonuria is an inherited disorder affecting the metabolism of:

(a) Phenylalanine

(b) Tyrosine

(c) Tryptophan

(d) Arginine

31. The neurotransmitter dopamine is synthesized from:

(a) Tryptophan

(b) Tyrosine

(c) Glutamate

(d) Glycine

32. Melatonin synthesis occurs primarily in the:

(a) Pineal gland

(b) Pituitary gland

(c) Thyroid gland

(d) Adrenal gland

33. A deficiency in the enzyme tyrosine hydroxylase can lead to:

(a) Parkinson's disease

(b) Serotonin syndrome

(c) Depression

(d) All of the above

34. Elevated levels of serotonin can cause a condition known as:

(a) Serotonin deficiency syndrome

(b) Serotonin toxicity

(c) Serotonin depletion syndrome

(d) None of the above

35. Which of the following is NOT a function of noradrenaline (norepinephrine)?

(a) Regulation of blood pressure

(b) Stimulation of the fight-or-flight response

(c) Regulation of mood

(d) Promotion of sleep

36. Heme degradation primarily occurs in the:

(a) Liver

(b) Spleen

(c) Kidneys

(d) Intestines

37. Bilirubin is a yellowish pigment formed during the breakdown of:

(a) Hemoglobin

(b) Myoglobin

(c) Cytochrome c

(d) All of the above

38. Conjugated bilirubin is more water-soluble than unconjugated bilirubin and can be:

(a) Excreted in bile

(b) Excreted in urine

(c) Both (a) and (b)

(d) Neither (a) nor (b)

39. High levels of unconjugated bilirubin in the blood can lead to:

(a) Jaundice

(b) Hemolytic anemia

(c) Both (a) and (b)

(d) Neither (a) nor (b)

40. Neonatal jaundice is a common condition caused by:

(a) Immature liver function in newborns that can't effectively process bilirubin.

(b) Genetic disorders affecting bilirubin metabolism.

(c) Both (a) and (b)

(d) None of the above

Answers

1. Beta-oxidation is the process by which fatty acids are broken down into: **c) Acetyl CoA**
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