

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

**UNIVERSITY EXAMINATIONS 2020/2021**

**YEAR II END OF SEMESTER II EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACY**

**PHA 2112: BIOCHEMISTRY V**

**DATE: JANUARY 2021 TIME: 1.5 HOURS**

Which is the INCORRECT statement about the bile salt.

In which form the digested product of stomach reaches the small intestine?

a) Micelles

b) Emulsified fat

c) Chime

d) Lipoproteins

13. What is the primary lipoprotein secreted from the liver that is at least partially composed of dietary derived lipids?

a) Chylomicrons

b) HDL

c) VLDL

d) LDL

14. Which of the following molecule is not a gluconeogenic substrate?

a) Alanine

b) Oxaloacetate

c) Glycerol

d) Acetyl-CoA

15. The highest phospholipids content is found in…

a) Chylomicrons

b) VLDL

c) LDL

d) HDL

16. Genetic deficiency of lipoprotein lipase cause hyperlipoproteinemia of the following type:

a) Type I

b) Type IIa

c) Type IIb

d) Type V

17. Zellweger’s syndrome is associated with abnormality of

a) Nonessential fatty acid metabolism

b) Essential fatty acid metabolism

c) Cholesterol metabolism

d) Lipoprotein metabolism

18. Although ketogenesis occurs in hepatocytes it cannot utilize ketone bodies. It is due to deficiency of the enzyme

a) Thiokinase

b) Thiophorase

c) Thiolase

d) Thiolyase

19. Ketoacidosis is a disorder of

a) Phospholipid metabolism

b) Ketone body metabolism

c) Choresterol metabolism

d) Fatty acid metabolism

20 Sphingolipidoses is the disorder of?

a) Phospholipid metabolism

b) Ketone body metabolism

c) Choresterol metabolism

d) B. Fatty acid metabolism

21. Sphingolipidoses leads to the improper functioning of which organ?

a) Liver

b) Stomach

c) Brain

d) Heart

22. Which of the following statement is NOT true?

a) Ketosis is associated with ketone bodies

b) In ketoacidosis, blood Ph increases

c) Sphingolipidoses is a disorder of sphingolipids

d) Atherosclerosis is caused due to hyperlipidemia

23. Which of the following factor is responsible for atherosclerosis?

a) Age

b) Genetic factor

c) Smoking

d) All of the above

24. Which of the following is the cause for ketoacidosis?

a) Heart attack

b) Renal failure

c) High cholesterol

d) High BP

25. What are the effects due to Carnitine Transport system Disorder?

a) Long chain fatty acid cannot transfer

b) Heart disease

c) Accumulation of fatty acid in muscle

d) Both A and C

26. What is the concentration of ketone bodies in the blood?

a) 2mmol/L

b) 0.2mmol/L

c) 0.02mmol/L

d) 20mmol/L

27. Ketosis is mainly found in which disease?

a) Rheumatic fever

b) Diabetes mellitus

c) Hypertension

d) Lung diseases

28. What dietary component has been shown to improve hypertension in humans?

a) Potassium

b) Sodium

c) Polyunsaturated fatty acids

d) Cholesterol

29. Which fatty acids found in plasma phospholipids are associated with reduced cardiovascular mortality?

a) Palmitic acid (16:0)

b) Long chain (=20 carbons) saturated and n-3 polyunsaturated fatty acids

c) -linolenic acid

d) Stearic acid (18:0)

30. The gut microbes metabolize L-carnitine into which metabolite that has been shown increase cardiovascular disease?

a) Choline

b) Betaine

c) Trimethylamine

d) All of the above

**SECTION B (30 MARKS)**

31. Describe the digestion and absorption of dietary lipids. (5 marks)

32. Describe the formation and fate of ketone bodies. (5 marks)

33. Cholesterol is the precursor of four types of steroid hormone, name them? (5 marks)

34. Identify the lifestyle factors that influence plasma cholesterol concentrations and thus affect the risk of coronary heart disease. (5 marks)

35. Explain the formation of lipid micelles, monolayers and bilayers. (5 marks)

36. Discuss lipoproteins and apolipoprotein and their implication on health and neurological conditions. (5 marks)

**SECTION C (40 MARKS)**

37. Give an account of - oxidation of saturated even carbon fatty acid (Palmitic acid) along with its energetic and regulation. (20 marks)

38. Describe the synthesis, transport and functions of VLDL, HDL, LDL and chylomicrons.

(20 marks)

39. Explain the cholesterol metabolism and the effect on health. (20 marks)

40. Describe causes, clinical manifestation, diagnosis and possible prevention and treatment of ANY FIVE TYPES of lipids storage disease. (20 marks)