THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[MBBS 0123] **JANUARY 2023** **Sub. Code : 6055**

M.B.B.S. DEGREE EXAMINATION
(For the candidates admitted from the Academic Year 2019-2020)

FIRST YEAR – (CBME)
PAPER I – BIOCHEMISTRY

Q.P. Code: 526055

Time: 30 Minutes **Maximum : 20 Marks**

Answer All Questions

Choose one correct answer in the box provided in the Answer Script. No overwriting should be done. Choice should be given in Capital Letters.

III. Multiple Choice Questions: **(20 x 1 = 20)**

1. Two sugars which differ from one another only in configuration around a single carbon atom are termed
   A) Anomers B) Epimers C) Optical isomers D) Stereoisomers

2. A 25 year old man presents with diarrhea, bloating, flatulence and frothy stools after consumption of milk and dairy products. Mention the enzyme deficient in this individual
   A) Galactose-1-phosphate uridyl transferase B) Fructokinase
   C) Aldolase B D) Lactase

3. All of the following are branched except
   A) Amylopectin B) Starch C) Amylose D) Glycogen

4. Which of the following is not a lipid?
   A) Glycerol B) Palmitic acid C) Triacylglycerol D) Cholesterol

5. An infant, born at 28 weeks of gestation, rapidly gave evidence of respiratory distress. Lab and x-ray results supported the diagnosis of infant respiratory distress syndrome (RDS). Which of the following compound is the lung surfactant?
   A) Dipalmitoyl Phosphatidyl Choline B) Phosphatidyl serine
   C) Phosphatidyl ethanolamine D) Phosphatidyl inositol

6. Which type of fatty acid is arachidonic acid?
   A) 20:ω6 B) 20:ω3 C) 18:ω6 D) 22:ω3

7. A postoperative patient on intravenous fluids develops lesions in the mouth (angular stomatitis). His Riboflavin level is found to be abnormally low. Which of the following TCA cycle enzymes is most likely to be affected?
   A) Citrate synthase B) Isocitrate dehydrogenase
   C) Malate dehydrogenase D) Succinate dehydrogenase

8. Chylomicron transports triacylglycerol from intestine to:
   A) Liver B) Kidney C) Extrahepatic tissues D) Brain

9. The apoprotein present in nascent chylomicron is:
   A) apo B100 B) apo B48 C) apo CII D) apo E

10. Coenzymes of PDH complex are all except:
    A) TPP B) Biotin C) FAD D) NAD

11. All the following causes shift of oxyhemoglobin dissociation curve to right except
    A) Alkalosis B) 2, 3 BPG C) Hypoxia D) Anemia

12. A newborn is found to have fasting hypoglycemia. The nursery staff begins overnight feeds by nasogastric tube because they find that the child has consistently low blood sugars. A liver biopsy and molecular studies demonstrate an absence of glycogen synthase. The normal function of this enzyme is to do which of the following?
    A) Remove glucose residues one at a time from glycogen in the liver.
    B) Transfer glucose from UDP-glucose to the non-reducing end of a glycogen primer.
    C) Hydrolyze α--1, 6 bonds of glycogen.
    D) Function as a glucosyl 4:6 transferase.

13. Propionic acid accumulation from amino acid degradation will result from a deficiency of which one of the following vitamins?
    A) Vitamin B_6 B) Biotin C) Folic acid D) Vitamin B_1

14. The storage form of vitamin A in mammals is
    A) Retinyl esters B) Retinoic acid C) Retinal D) Beta carotene

15. A muscular 25-year-old man presents with dermatitis and an inflamed tongue. A history reveals that he has been consuming raw eggs as part of his training regimen for the past 6 months. Which of the following vitamins is most likely to be deficient in this patient?
    A) Biotin B) Cobalamin (vitamin B_{12})
    C) Folic acid D) Niacin (vitamin B_3)

16. Which one of the following is characteristic of low insulin levels?
    A) Increased glycogen synthesis
    B) Decreased gluconeogenesis from lactate
    C) Decreased glycogenolysis.
    D) Increased formation of Beta-hydroxybutyrate

17. A deficiency in thiamine (vitamin B_1) would most likely lead to which of the following clinical manifestations?
    A) Decrease in carboxylase enzyme activity
    B) Decrease in serum lactate concentrations
    C) Decrease in red blood cell transketolase activity
    D) Increase in urinary methylmalonate

18. The genetic disease which results from a mutation in the gene coding for the enzyme β-hexosaminidase A is called:
    A) Huntington disease B) Lesch-Nyhan syndrome
    C) Tay-Sachs disease D) Amyotrophic lateral sclerosis

19. A patient with hereditary type 1 hyperlipidemia presents with elevated levels of chylomicrons and VLDL triglycerides in the blood. The main function of the chylomicrons in circulation is to do which of the following?
    A) Transport lipids from the liver
    B) Transport dietary lipids from the intestine to target tissues
    C) Transport cholesterol from IDL to LDL
    D) Act as a receptor for triacylglycerols in the liver

20. You decide to treat a patient who has very high levels of serum cholesterol with the statin drug atorvastatin. You know that this drug acts in the metabolic pathway leading to the synthesis of cholesterol. The substrate for the enzyme inhibited by the statin drugs is which of the following?
    A) Acetoacetyl-CoA B) HMG-CoA
    C) Isopentenyl pyrophosphate D) Mevalonate.

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