MBBS: Biochemistry Paper 1 Part 1, ABVMUUP Paper Code: 2111130003

Q1. Discuss the amphibolic role of TCA cycle in the integration of metabolism. Highlight the sources and utilization of acetyl CoA. Explain the physiological regulation of TCA cycle. Add a note on energy generation in this cycle. (20)

Q2. Write briefly on: (4X5)

(a) Therapeutic uses of prostaglandins
(b) Phenylketonuria and Alkaptonuria
(c) Role of liver in integration of metabolism
(d) Gout

Q3. Ten multiple choice questions: (1 mark each)

a. An enzyme required for the synthesis of ketone bodies as well as cholesterol is:
A) Acetyl CoA carboxylase B) HMG CoA synthetase
C) HMG CoA reductase D) HMG CoA lyase

b. The physiological uncoupler of oxidative phosphorylation is:
A) 2,4 – dinitrophenol B) Dinitrocresol C) Thermogenin D)Valinomycin

c. NH_3 is removed from brain mainly by:
A) Urea formation B) Uric acid production
C) Glutathion D) Glutamine formation

d. Which urine test will be positive for patient with maple syrup urine disease?
A) Dinitophenyl hydrazine test B) Benedict's test
C) Ferric chloride test D) Cyanide nitrprusside test

e. *Homogentisic* acid is excreted in urine in:
A) Phenylketonuria B) Maple syrup urine disease
C) Tyrosinosis D) Alkaptonuria

f. Refsum's disease results from a defect in the following pathway:
A) Alpha-oxidation of fatty acids B) Beta-oxidation of fatty acids
C) Gamma-oxidation of fatty acids D) Omega-oxidation of fatty acids

g. Niacin deficiency can occur in:
A) Hartnup's disease B) Phenylketonuria
C) Alkaptonuria D) None of these

h. Gold standard marker for GFR (glomerular filtration rate) estimation is:
A) Urea clearence B) Cystatin clearence
C) Creatinine clearence D) Inulin clearence

i. The active transport system for hepatic uptake of bilirubin is congenitally defective in
A) Gilbert's disease B) Crigler-Najjar syndrome
C) Rotor's syndrome D) Dubin-Johnson syndrome

j. Activated lecithin cholesterol acyl transferase is essential for the conversion of:
A) Nascent LDL into LDL B) Nascent HDL into HDL
C) HDL2 into HDL3 D) HDL3 into HDL2

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MBBS: Biochemistry Paper 1 Part 2 ABVMUUP Paper Code: 2111230003

Q1. Discuss the mechanism of action of enzymes and the types of enzyme inhibition. Explain how enzymes have been used for therapeutics and diagnostics. (20)

Q2. Write briefly on: (4X5)
(a) Glycosaminoglycans
(b) Lysosomal storage diseases
(c) Wilson's disease
(d) Secondary structure of protein

Q3. Ten multiple choice questions: (1 mark each)

a. In case of competitive enzyme inhibition
A) V_{max} increases while Km remains the same
B) V_{max} decreases while Km remains the same
C) V_{max} remains the same while Km increases
D) V_{max} remains the same while Km decreases

b. Monosaccharides other than Glucose and Galactose are absorbed by:
A) Carrier-mediated diffusion
B) Passive diffusion
C) Active transport
D) Secondary active transport

c. Which one of the following is a phospholipid?
A) Prostaglandins B) Cerebroside C) Cholesterol D) Lecithin

d. The pentose sugar mainly present in the heart tissue is:
A) Lyxose B) Ribose C) Arabinose D) Xylose

e. The most effective blood buffer is:
A) Citric acid buffer
B) Carbonic acid buffer
C) Phosphate buffer
D) Glutamate buffer

f. Acrodermatitis enteropathica is due to defective absorption of:
A) Manganese B) Molybdenum C) Iodine D) Zinc

g. Which one of the following contains copper?
A) Ceruloplasmin B) Albumin C) Glutathione peroxidase D) Calcitonin

h. Fluoride ions in grey capped vacutainer inhibits
A) Enolase
B) Hexokinase
C) Lactate dehydrogenase
D) Pyruvate dehydrogenase

i. Which of the following has the lowest concentration of cholesterol?
A) Liver B) Milk C) Chicken meat D) Eggs

j. Mark the correct statement regarding Chylomicrons:
A) Principally carry cholesterol
B) Are synthesized in small intestine
C) Are apolipoproteins
D) Are the smallest of lipoproteins

Max marks 50

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