

[MBBS 1123]

NOVEMBER 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: Three hours****Maximum : 100 Marks (80 Theory + 20MCQs)****Answer All Questions****I. Essay:****(2 x 15 = 30)**

1. A 26 year old female presented with history of anorexia, constipation, fatigue, poor memory, irritability, sleep disturbance; bilateral, symmetrical lower extremities paraesthesia with burning pain and muscle cramps. On examination there was decreased vibratory position sensation, absent knee and ankle jerk and muscle atrophy. Her diet consisted of polished rice without pulses, oil seeds etc. The enzyme transketolase level in erythrocytes was low.
 - a) What is your probable diagnosis?
 - b) Mention the cause for this condition.
 - c) Name the sources and required daily allowance (RDA) of the deficient nutrient.
 - d) Why erythrocyte transketolase level was measured in this condition?
 - e) List out the enzymes dependent on this nutrient.
 - f) Explain the biochemical basis of the clinical features in this patient.
 - g) Note on management of this condition.
2. Explain in detail about degradation of heme and fate of bilirubin. Write down the causes of hyperbilirubinaemia and the lab investigations in differential diagnosis of jaundice. Write a note on jaundice in newborn.

II. Write short notes on:**(10 x 5 = 50)**

1. What are mucopolysaccharides? Name the mucopolysaccharide present in the glomerular basement membrane and its clinical importance. Mention the two mucopolysaccharides which are elevated in Hurler's syndrome? Which mucopolysaccharide maintains the transparency of cornea?
2. Biochemical functions of Vitamin C.
3. What is calorific value? Calculate the energy requirement of a 50 year old moderate worker
4. Explain the effect of temperature and substrate concentration on enzyme activity with a graph.
5. Write briefly about diseases caused due to abnormalities of membrane proteins –
 - a) Cystic fibrosis.
 - b) Wilson's disease.
 - c) Hereditary spherocytosis.
6. Discuss about importance of Communication skills in Doctor - Patient encounters.

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7. Deficiency of lung surfactant causes Respiratory Distress Syndrome.
 - a) What is the composition of lung surfactant?
 - b) What is the biochemical basis for Respiratory distress syndrome?
 - c) What is the significance of L/S ratio?
8. Pyruvate kinase deficiency and glucose-6-phosphate dehydrogenase deficiency cause hemolytic anemia – Give reasons.
9. Give reasons for hypercholesterolemia in the following conditions:
 - a) Hypothyroidism.
 - b) Diabetes mellitus.
 - c) Obstructive jaundice.
 - d) Nephritic syndrome.
 - e) Familial hypercholesterolemia.
10. A 12 year old girl presented with stiffness and tingling of hands and feet, carpopedal spasm. On examination Trousseau's sign was positive, Chvostek's sign was positive. On laboratory evaluation, serum calcium was significantly reduced
 - a) Interpret the findings and suggest the probable diagnosis.
 - b) Mention the reference range and dietary sources of the nutrient.
 - c) Explain the role of hormones in regulating the blood levels of this nutrient.

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