



RAN - 2006000101030001

RAN-2006000101030001
1st MBBS Examination
January - 2021
Biochemistry -Paper-1
(New CBME Pattern)
સૂચના : / Instructions

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નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવટી પર અવશ્ય લખવી.
Fill up strictly the details of signs on your answer book

Name of the Examination:

 1st MBBS

Name of the Subject :

Biochemistry -Paper-1 (New CBME Pattern)

Subject Code No.: 2006000101030001

Seat No.:

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Student's Signature

Section A: MCQ
(20 Marks)
Instructions:

- All questions are compulsory
- Each MCQ has only one correct answer
- One mark for correct answer. No negative marking
- If more than one answer is ticked, it will be treated as wrong answer
- Any tempering with answer will be treated as wrong answer
- Use only ball point black pen. Pencil is strictly prohibited
- Correct answer must be marked on OMR sheet with black pen & submit in first 30 minutes

- Which of the following is not a reducing sugar?

a) Lactose	b) Maltose
c) Sucrose	d) Fructose
- Spermatozoa in seminal fluid utilizes the following sugar for its metabolism

a) Galactose	b) Glucose
c) Fructose	d) Mannose

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- 3 Rancidity of butter is prevented by addition of
 - a) Vitamin D
 - b) Tocopherols
 - c) Biotin
 - d) Copper
- 4 Irreversible steps of Glycolysis are catalyzed by:
 - a) Hexokinase, Phosphofructokinase, Pyruvate Kinase
 - b) Glucokinase, Pyruvate Kinase, Glyceraldehyde 3 Phosphate Dehydrogenase
 - c) Hexokinase, Phospho Glycerate Kinase, Pyruvate Kinase
 - d) Pyruvate Kinase, Fructose 1,6 Bisphosphatase, Phosphofructokinase
- 5 Peripheral neuropathy occurs due to accumulation of which of the following sugar?
 - a) Sorbitol
 - b) Mannitol
 - c) Ribitol
 - d) Glycerol
- 6 Fatty acid oxidation does takes place in
 - a) Cytoplasm
 - b) Mitochondria
 - c) Golgi apparatus
 - d) Endoplasmic reticulum
- 7 Obesity generally reflects excess intake of energy and is often associated with the development of
 - a) Nervousness
 - b) Non-insulin dependent diabetes mellitus
 - c) Colon cancer
 - d) Mood elevation
- 8 Which of the following cytochrome is involved in biotransformation of xenobiotics?
 - a) Cytochrome c
 - b) Cytochrome b
 - c) Cytochrome P₄₅₀
 - d) Cytochrome al
- 9 SDA of food is highest for:
 - a) Carbohydrates
 - b) Fats
 - c) Iron
 - d) Proteins
- 10 Regarding HMP shunt all of the following are true, EXCEPT
 - a) Occurs in cytosol
 - b) No ATP produced
 - c) Active in adipose tissue, liver, lactating mammary gland, adrenal gland
 - d) Oxidative phase generates NADPH and non oxidative phase generates pyruvate

- 11 Which of the following carbohydrate is used to measure glomerular filtration rate?
 - a) Inulin
 - b) Chitin
 - c) Dextran
 - d) Sucrose

- 12 All are true about HbA 1 c, except
 - a) Fasting sample is not required
 - b) Gives status of long-term glucose control
 - c) Sample must be collected in fluoride bulb
 - d) HbA1c more than 9% indicates poor control

- 13 Blood urea level is high in all, EXCEPT
 - a) Renal failure
 - b) Dehydration
 - c) Hepatic failure
 - d) Prostate hypertrophy

- 14 BMR is decreased in
 - a) Cold climate
 - b) During exercise
 - c) Age 4 to 6 years
 - d) Hypothyroidism

- 15 Hemolyzed sample is not suitable for estimation of which parameter?
 - a) Sodium
 - b) Potassium
 - c) Chloride
 - d) Calcium

- 16 Increased H^+ , decreased HCO_3^- and decreased pCO_2 are seen in
 - a) Metabolic acidosis
 - b) Metabolic alkalosis
 - c) Respiratory acidosis
 - d) Respiratory alkalosis

- 17 The predominant cation of intra cellular fluid is
 - a) K^+
 - b) Na^+
 - c) Mg^{2+}
 - d) Ca^{2+}

- 18 Which of the following statement(s) about dietary fiber is/are true
 - a) Fibers helps in reducing risk of colon cancer
 - b) Fiber lowers serum cholesterol levels
 - c) Promotes the normal motility of the gut and prevents constipation
 - d) All of the above

- 19 Chronic alcoholism poses a risk of
 - a) Lactic acidosis
 - b) Hepatic cirrhosis
 - c) Wernicke-Korsakoff syndrome
 - d) All of the above

- 20 Which of the following dietary measure(s) is/are considered as 'cardioprotective'?
- Consuming large quantities of PUFA
 - Restricting SFA to less than 10% of total calorie intake
 - Adding more fiber to diet
 - All of the above

Instructions : for section B & C:

- Use blue/black ball point pen only.
- The numbers to the right indicates full marks.
- Draw diagrams wherever necessary

Section B:
(40 Marks)
Q 2: Long Answer Questions (ANY TWO)
(2 × 10 = 20)

- Enumerate functions of Cholesterol. Describe the synthesis of cholesterol. Add a note on its regulation. What are other fate of acetyl CoA (2+4+2+2= 10) marks).
- What is gluconeogenesis? What is the importance of gluconeogenesis? Name the substrate used for gluconeogenesis. Describe the pathways of gluconeogenesis Name disease/condition in which gluconeogenesis is significantly enhanced (1+2+1+5+1 = 10 marks).
- Describe the dietary sources, absorption, daily requirement, biochemical functions and disorders of calcium metabolism. Add a note on regulation serum calcium level (1+2+1+2+1+3=10 marks).

Q 3: Brief Answer Questions (ANY TEN)
(10 × 2 = 20)

- Biochemical basis of respiratory distress syndrome in newborns.
- Define glycemic index and state its importance.
- What is glycated hemoglobin? Write its normal range and clinical significance.
- Lactose intolerance
- Biochemical basis of Wilson disease
- Lysosomes are called suicidal bags, justify.
- Functions of iron.
- Metabolic acidosis
- Describe the biomedical importance of dietary fibres
- Essential fatty acids: names, biochemical basis of essentiality, functions and deficiency manifestations,
- Write any two reactions of detoxification by conjugation.

Section C

Q 4: Short answer questions (ANY FOUR) (4 × 5 = 20)

- Discuss essential elements of communication in medical encounters. Construct a plan for effective patient-doctor communication (3+2 Marks).
- Classify phospholipids with example. Enumerate the functions of phospholipids. (2+3 Marks)
- Renal function tests
- Glycogen storage disorders.
- Harmful effects of free radicals on biomolecule and diseases associated with it.

Q 5: Clinical Cases (ALL COMPULSORY) (2 × 10 = 20)

Case 1:

15 year unconscious boy was brought by his parents in hospital. He had tachypnea (increase respiratory rate) & fruity smell from breath. Sign of dehydration was present. In blood investigation, his blood glucose level found 450 mg% and metabolic acidosis seen in ABG.

- What is a diagnostic criterion for diagnosis of DM based on plasma glucose concentration (WHO criteria)?
- What is reason for fruity smell in breath, tachypnea and dehydration?
- Why uncontrolled diabetes mellitus leads to ketosis?
- Write various causes of metabolic acidosis?
- Write acute and chronic complication of non insulin dependent Diabetes mellitus.

Case 2:

- A 35 year old pregnant woman from poor family came with complain of weakness breathlessness and early fatigue. On examination she was pale; her Hb was 7.0 gm% and peripheral smear showed hypochromic microcytic RBCs.

- What are dietary sources of iron?
- Write RDA of Iron in adults.
- Enlist the factors affecting absorption of Iron. What is role of vitamin C in iron absorption?
- Functions of iron (any four).
- Iron is called one-way element. Explain.