Department of biochemistry, GMC, Surat
1st MBBs Preliminary Examination –June-2018; Biochemistry paper – I
Duration : 2 hours **Max mark: 50**

Q: 1 write notes (2 out of 3) **(08 marks)**

1. Significant of HMP Shunt pathway & NADPH.
2. Electron-transport Chain
3. Regulation of Glycogenolysis. Enumerate any four Glycogen storage disorders with respective enzyme deficiency.

Q: 2 describe in brief (4 out of 6) **(12 marks)**

1. Significance of Glycosylated hemoglobin
2. Metabolism of LDL
3. Principle and types of ELISA.
4. Tumour markers
5. Mucosal block theory of iron absorption
6. Clinical significance of Dietary Fiber

Q: 3 write answer in few line (5 out of 6) **(05 marks)**

1. Sorbitol pathway
2. Rapoport Luebering shunt
3. Application of electrophoresis
4. Significance of cholesterol
5. Difference between cholinesterase and pseudocholinesterse.
6. Function of Phospholipids

Q: 4 read the case & answer the questions **(10 marks)**

A 54 year old obese person presented in emergency with altered consciousness level and increase respiratory rate (tachypnea) for last 4 hours. He is having history of uncontrolled diabetes mellitus since 15 years, as he was not following any medical advice from physician. He was on insulin therapy for 3 years, but he was not taking regular dose of insulin. Patient's relative told that was also having complain of weakness and decrease urine output for last 2 days. On examination physician noted dryness of mouth, pale & dry conjunctive, sunken eye ball, feeble (low volume) pulse, tachypnea (increased respiratory rated), tachycardia (increase heart rate), very low blood pressure (70/40 mm Hg). Results of lab investigations are as follows.

Parameter	Value	Referance Range
Random blood sugar	500 mg/dl	<140 mg/dl
Serum acetone	10 mg/dl	<1 mg/dl
Serum creatinine	2.5 mg/dl	0.4-1.4 mg/dl
Blood urea	150 mg/dl	15-45 mg/dl
Serum Na+	120mmol/L	135-145 mmol/L
Serum K+	6.0 mmol/l	3.5-5.0 mmol/L
pH	7.1	7.35-7.45
pO2	95 mmHg	90-100 mmHg

The patient was diagnosed as a case of Diabetic ketoacidosis with acute renal failure.Patient was treated with

- Inj normal saline fast I.V. (4-5 litre in 1st 24 hrs) Until systolic blood pressure reaches to normal
- Inj Human Insulin injection slow infusion I.V.
- (If RBS is >200 mg/dl Normal saline + insulin, if RBS <200 mg dextrose 5% + insulin)
- Inj Bicarbonate 200 ml I.V.
- K+ Binding resin Sachets Orally.
- Urinary catheterization done but urine output is nil.
- All the biochemical parameters and urine output are monitored at regular interval till patient recovered.

1. Give explanation for altered consciousness and increase respiratory rate in this case.
2. What metabolic and functional abnormality can occur due to increase acetone level?
3. Why after 24 hours serum acetone came down nearer to normal level?
4. What is the cause of decreased urine output in this patient?
5. How bicarbonate, insulin and K+ binding resin reduce serum potassium level?

Q:5 write justification (answer in few lines) (5 out of 7) **(10 marks)**

1. Premature baby tends to develop respiratory distress syndrome
2. Ethanol is used to treat methanol poisoning.
3. Orlistat (pancreatic and hepatic lipase inhibitor)treatment is supplemented with lipid soluble vitamins.
4. Structure of proteoglycan is well suited for its function.
5. Primaquine administration in G6PD deficient patient can precipitate Hemolytic anaemia
6. In absence of O2, glycolysis can not continue if there is no formation lactic acid.
7. Inulin is used to measure glomerular filtration rate

Q:6 write answer in few line (5 out of 6) **(05 marks)**

1. Difference between Glucokinase & Hexokinase
2. Essential fatty acids name & function.
3. Renal glycosuria
4. Lactose Intolerance
5. Name of Lipoprotein
6. C-peptide