Department of Biochemistry, GMC, Surat
1st MBBS Preliminary Examination, June – 2017
Biochemistry Paper - II

Duration : 2 hours **Max Mark: 50**

Q: 1 Write Notes (2 out of 3) **(08 Marks)**

1. Overview of tyrosine & phenylalanine metabolism. Give biochemical explanation of phenylketonuria & alkaptonuria.
2. Write component of DNA replication fork & explain it's role.
3. Write haemoglobin degradation (Billirubin formation). Describe type & causes of jaundice.

Q: 2 Describe in brief (4 out of 6) **(12 Marks)**

1. Competitive inhibition and Non- Competitive inhibition. (give example)
2. Post-transcription modification.
3. Diagnostic importance of isoenzyme
4. Salvage pathway of Purine synthesis & Lysch Nyhan Syndrome
5. Explain " why ammonia is toxic to the brain."
6. Lac operon

Q: 3 Write answer in few line (5 out of 6) **(05 Marks)**

1. Name and defination of Essential Amino acid
2. List factor increasing Basal Metabolic Rate.
3. Enumerate Effect and Type of Mutation.
4. Difference between Glucokinase and Hexokinase.
5. Explain "Vitamin B 12 deficiency leads to folate trap".
6. CK-MB & Cardiac-Troponin-T in case of Myocardial infarction

Q: 4 Read the case & answer the questions **(10 Marks)**

25 years male patient came in emergency with complain of acute abdominal pain with breathlessness. He was having history of high grade fever and coughing with yellowish sputum for 5-7 days. He was a known case of sickle cell anaemia. He was investigation. Reports are mentioned below.

		Reference Range
Serum Haemoglobin	= 6.0 gm%	13.5 – 16.5 gm%
WBC	= 18200	4000 – 11000 /cmm
Platelet Cell	= 3,00,000	150000 – 450000 /cmm
Blood Smear	= Sickled Shape RBC	
	= Hypochromic Microcytic anaemia	
Hb electrophoresis	= HbS band Present.	
X-Ray chest	= Congestion (Hazziness) on Both Side of Lungs area	

Physician diagnosed , it was Bronchopneumonia with Sickle cell crisis. Physician treated patient with Antibiotics, Oxygen Inhalation , Fluid (Hydration) and Later Blood Transfusion. He prescribed hydroxyurea on discharge from hospital.

1. What is the pathogenesis of sickle cell disease at molecular level?
2. What is sickle cell crisis & What can be a precipitating factor in this case?
3. What is principle and utility of dithionite test & haemoglobin electrophoresis in case of sickle cell anaemia?
4. What is biochemical reason for giving oxygenation and hydration in treatment of sickle cell crisis?
5. What is role of hydroxyurea in case of sickle cell disease?

Q:5 Write Justification (Answer in few lines) (5 out of 7) **(10 Marks)**

1. Haemolysed blood sample is not suitable for potassium estimation.
2. Oral rehydration solution is made up of glucose with sodium
3. Alpha 1 anti-trypsin deficiency cause emphysema.
4. Phenobarbitone precipitate acute intermittent porphyria.
5. Adenosine deaminase deficiency cause severe immuno-deficiency disorder.
6. Methotrexate (Folic acid analogues) is used to treat neoplastic disease.
7. Pellagra can occur in carcinoid syndrome.

Q:6 Write Answer in Few line (5 out of 6) **(05 Marks)**

1. Characteristic of Zwitter ions
2. Enumerate function of protein with example (any four).
3. Primary structure of protein
4. Telomerase inhibitors can be used in treatment of malignancy.
5. Defination & significance of protein denaturation.
6. Define Chaperon & Prion protein.