

Department of Biochemistry, GMC, Surat
1st MBBS Preliminary Examination, June – 2018
Biochemistry Paper - II

Duration : 2 hours

Max Mark: 50

Q: 1 Write Notes (2 out of 3)

(08 Marks)

1. Phenylalanine metabolism. Biochemical pathogenesis & investigation of phenylketonuria & alkaptonuria.
2. Write molecular explanation and pathogenesis of sickle cell disease.
3. Biochemical explanation of different type of jaundice. Explain biochemical test to differentiate type of jaundice.

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

(12 Marks)

1. Explain difference between induction – repression and activation – inhibition of enzyme with examples.
2. Post-translation modification. Give any two examples to explain it's significant.
3. DNA repair mechanism & related disorder.
4. Primary structure and it's relation with function of protein. Give three example
5. Salvage pathway of Purine synthesis & Lysch Nyhan Syndrome
6. Lac operon

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

(05 Marks)

1. Explain significant of zwitter ions.
2. Arterial blood gas changes in case of partially compensated metabolic acidosis.
3. Enumerate type of mutation & their effects.
4. Difference between Nuclear DNA & Mitochondrial DNA
5. Folate trap
6. Explain "Excess use of barbiturate cause anemia".

Q: 4 Read the case & answer the questions

(10 Marks)

25 years patient come with complain of high grade fever since 7-8 days. On examination , it was found that patient has icterus in sclera. patient was known case of sickle cell trait.

(Reference Range)

| | | |
|---|-------|--------------------------------|
| Haemoglobin | = 7.0 | (13.5 – 15.5 gm %) |
| Serum Total Billirubin | = 7.0 | (0.2 – 1.2 mg%) |
| Serum Direct Billirubin | = 2.0 | (0.1 – 1.0 mg%) |
| Serum Indirect Billirubin | = 5.0 | (0.1 – 0.2 mg%) |
| Alanine transaminase | =115 | (0 – 45 IU/L) |
| Serum LDH | =1560 | (100 – 180 IU/L) |
| Serum G 6 P D | = 13 | (5.5 to 20.5 units/gram of Hb) |
| Blood smear examination=Plasmodium vivex is present | | |

Physician started following treatment.

Chloroquine
Paracetamol (NSAIDs)
Omeprazol (proton pump inhibitor)
Blood transfusion

Patient got relief from fever with 3 days. At time of discharge , physician advices start tablet primaquine for 15 days to eradicated hepatic parasite. **Give answer of following question .**

1. What are reasons for high value of total and indirect billirubin in blood?
2. What is significant to investigate alanina transminase and LDH level in blood in this case?
3. Give biochemical explanation of testing serum G6PD level in case of plasmodium vivex infection.
4. Give biochemical explanation of use of paracetamol (NSAIDs) to reduce fever? Explain it.
5. Why sickle cell disease patient are prevented from plasmodium falciparum injection ?

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

(10 Marks)

1. Adenosine deaminase deficiency cause severe immuno-deficiency disorder.
2. Intrauterine death of fetus can cause disseminated intravascular coagulopathy (DIC).
3. A single intramuscular dose of Vitamin K is given to all newborns.
4. Vitamin C deficiency cause scurvey
5. Cigarette smoking causes emphysema.
6. Diarrhea cause normal anion gap acidosis.
7. Insulin is use in treat of hyperkalemia (increase potassium)

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

(05 Marks)

1. Acute phase protein
2. Diagnostic important of alkaline phosphatase
3. Action and significant of warfarin on vitamin k cycle.
4. Homeostatic relation between calcium , vitamin-D and parathyroid hormone.
5. Definition & significance of protein denaturation.
6. Explain "Why change in pH of buffer solution changes function of enzyme?".