**SURAT MUNICIPAL INSTITUTE OF MEDICAL EDUCATION & RESEARCH, SURAT**

**First MBSS (Repeaters Batch), PRELIMINARY EXAMINATION, DECEMBER 2016**

**BIOCHEMISTRY: Paper-2**

**Date: 05-12-2016; Time: 2 Hours, 30 Minutes (10.00 am -12.30 pm) [Total Marks: 50]**

Note: Figures to the right indicates full marks

Draw diagrams and flow charts where appropriate.

Answers should be legible and to the point.

**Start New Question on separate page. Write Question and Sub-question Nodistinctly.**

**SECTION-1**

**Q.1. Short Notes: (2 out of 3) 08**

(a)Describe the process of transcription in prokaryotes along with clinical application.

(b)Describe the metabolism of tyrosine along with relevant congenital defects in the pathway.

(c)Enzyme inhibition.

**Q.2. Short Notes (4 out of 6) 12**

(a) One carbon metabolism.

(b) Post translational modifications.

(c)Secondary structure of protein with clinical aspects.

(d) Role of isoenzymes in diagnosis of Acute MI.

(e)Radioisotopes in medicine

(f)Role of Vitamin A in vision

Q**.3. Answer in one or two lines (5 out of 6) 05**

(a) Coenzymes are also called as co substrates.

(b) What is Hartnups disease?

(c)Mention the principle of Electrophoresis?

(d) Mention Characteristics of the Active site of the enzyme

(e)What is the function of restriction endonuclease?

(f) Name the uses of PCR.

**SECTION-2**

**Q.4.Read the following case and answers the questions: 10**

A 10-year-old boy was brought to casualty with fever and breathlessness. Earlier he was seen by a general practitioner who had prescribed antibiotics with a diagnosis of upper respiratory tract infection. Presently the child appeared out of breath and was complaining of aches and pains, and tiredness. On examination, he was clinically anaemic, icteric and showed pallor and signs of retarded growth and development. The sclera was yellow, abdomen was distended and the spleen was enlarged. Urine was analysed by the staff-nurse in the side lab; presence of abnormally large amounts of urobilinogen was reported. Emergency blood sample was sent to the biochemistry and haematology laboratory and results of some of the blood tests were as follows.Blood smear contained a few crescent-shapedcells. Electrophoresis of haemoglobin was performed to detect haemoglobin structural variant, if any. It revealed presence of HbS. Based on these tests; the child was diagnosed as having sickle cell anaemia.

|  |  |  |
| --- | --- | --- |
| **Test** | **Patient’s report** | **Reference range** |
| Haemoglobin | 5.2g/dL | 13-16 g/dL |
| RBC count | 2 millions/mm3 | 4.5-5.5 millions/mm3 |
| Platelets | 190000 /microL | 150000-450000/microL |
| Total Bilirubin | 4.8 mg% | 0.1-1.1 mg% |
| ALT/SGPT | 48 U/L | 10-40 U/L |
| Alkaline phosphatase | 90 U/L | 40-100 U/L |
| LDH | 386 U/L | 100-300 U/L |
| Na | 138 mmol/L | 135-145 mmol/L |
| K | 6.0 mmol/L | 3.5-5.5 mmol/L |

1. What is the genetic basis of the disease?
2. Name any four abnormal haemoglobins.
3. Explain why sickling of RBCs is observed on peripheral smear.
4. Explain about high Total Bilirubin and LDH seen in this patient.
5. Which parasitic infection will this patient be protected against? Why?

**Q.5. Write justification (5 out of 7)10**

(a)Carcinoid syndrome leads to pellagra.

(b)Mutation is not harmful always.

(c) Suicide inhibition has therapeutic importance in treatment of a disease

(d) Ciprofloxacin, a DNA gyrase inhibitor is used in treatment of bacterial infection

(e) Zwitter ions doesn’t move under electric field

(f) Phenobarbitone precipitates acute intermittent porphyria.

(g)Increase Homocysteine in blood can increase the risk of Ischemic Heart Disease.

**Q.6. Answer in one or two lines** (**5 out of 6) 05**

(a) Define detoxification

(b) What is negative acute phase protein? Give one example

(c) Explain by example: Enzyme has a therapeutic role

(d) Importance of FIGLU

(e) Biochemical defect seen in scurvy

(f)What is Ribozyme?

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