

Post graduation (M.D. - Biochemistry) Preliminary Theory Examination
Government Medical College , Bhavnagar
Paper-1 (General and Clinical Biochemistry - Enzymology and Biostatistics)

Date : 14/10/2024

Marks : 100

Q-1 Write detail notes on following. (20 Marks)

- Explain principle of potentiometry using Ion Selective Electrode for pH, pO₂, pCO₂ and glucose estimation. Draw figure for each ISE based electrode and define it's part with significance.

Q-2 Write detail notes on following. (20 Marks)

- Write salvage pathway of purine and it's disorder. Explain biochemical reason for different type of hyperuricemia and it's management

Q-3 Write short notes on following. (20 Marks)

1. Explain primary structure relationship with protein function with two example.
2. Explain any five different mechanism of chemotherapeutic drug.

Q-4 Write short notes on following. (40 Marks)

1. Technic, Advantage and disadvantage of eLearning teaching and assessment method.
2. Define harmonization as per ISO 15189:2022 and write it's need with criteria.
3. Significant of essential fatty acid
4. Technic, advantage and disadvantage of Problem based learning
5. Principle, type and use of ELISA
6. Clinical utility of enzyme inhibition.
7. Role of Gene expression for regulation of ferritin and transferrin synthesis.
8. Explain Type of lipoprotein with it function

Post graduation (M.D. - Biochemistry) Preliminary Theory Examination
Government Medical College , Bhavnagar
Paper-2 (Metabolism , Bioenergetics, Nutrition , Vitamins and Hormones)

Date : 16/10/2024

Marks : 100

Q-1 Write detail notes on following.

(20 Marks)

- Type of haemoglobinopathies. Biochemical and molecular basis of pathogenesis , clinical feature, diagnosis and treatment of sickle cell disease.

Q-2 Write detail notes on following.

(20 Marks)

- Biochemical changes occurs diabetes mellitus ketoacidosis. Write it's diagnosis with biochemistry explanation of changes in parameters and management of same.

Q-3 Write short notes on following.

(20 Marks)

1. Biochemical basis of etiology, clinical features, diagnosis and treatment of various hyperhomocystinemia *TyTm*
2. Draw flow chart for understanding of Von-Gierke's disease pathogenesis and it's consequences. *G6Pd*

Q-4 Write short notes on following.

(40 Marks)

1. Metabolic changes during starvation. ✓
2. Overview of HDL metabolism ✓
3. G6PD deficiency and it's clinical significant with treatment of malaria. ✓
4. Metabolism and fates of phenylalanine. ✓
5. Energy formation from palmitic acid through beta oxidation. ✓
6. Alcohol metabolism and it's effect on other metabolism. ✓
7. Effect of pancreatitis on digestion – absorption and it's consequences. ✓
8. Dietary advice for patient of coronary artery disease, with biochemical reason. ✓

Post graduation (M.D. - Biochemistry) Preliminary Theory Examination
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Paper-3 (Molecular Biology , Immunology and Cancer)

Date : 18/10/2024
Marks : 100

Q-1 Write detail notes on following. (20 Marks)

- Define and differentiate DNA damage and mutation. Write factor responsible for it and it's repair mechanism in detail. Explain disease related to defect of repair mechanism.

Q-2 Write detail notes on following. (20 Marks)

- Role of vector and restricted endonuclease enzyme in Recombinant DNA technology. Explain Detection of clone colony of the bacteria after recombinant DNA process.

Q-3 Write short notes on following. (20 Marks)

1. Type and Genetical basis of diversification of Immunoglobulin. Explain somatic hypermutation.
2. RFLP

Q-4 Write short notes on following. (40 Marks)

1. Define cDNA library and it's significance.
2. Type and effect of the mutation – explain each with example
3. Quantitative Real time PCR
4. Mechanism of intron removal and splicing.
5. Lac operon
6. Explain “ All mutation are not dangerous”
7. Type and mechanism of action of Vaccines
8. Mechanism of action of Drugs used against SARS-COVID19

Post graduation (M.D. - Biochemistry) Preliminary Theory Examination
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Paper-4 (Technique in experimental biochemistry, Recent advances)

Date : 21/10/2024

Marks : 100

Q-1 Write detail notes on following. (20 Marks)

- Define and enumerate pre-analytical, analytical and post-analytical error with it's biochemical impact on patient's report. Explain relevant two – two quality indicators to corrected these error for each three zone of the clinical biochemistry laboratory, with it's measurable objective and monitoring policy.

Q-2 Write detail notes on following. (20 Marks)

- Type , principle, technic, significant and factor affecting protein electrophoresis ✓

Q-3 Write short notes on following. (20 Marks)

1. Requirement as per ISO 15189:2022 and NABL-112 for internal quality control implementation and policy for finding as well as updation of mean & SD. ✓
2. Technic for root cause analysis. ✓

Q-4 Write short notes on following. (40 Marks)

1. Dry vs Wet Chemistry Analyzer. ✓
2. Requirement of good LIS in clinical biochemistry laboratory. ✓
3. Define and strategy for Risk management. ✓
4. Alternate approach for proficiency testing, in non-availability of commercial EQAS. ✓
5. Advantages and disadvantages of POCT ✓
6. Role and responsibility of quality manager. ✓
7. Write blood and urine investigation require for differential diagnosis of renal failure. ✓
8. Kinetic vs Fix Time Kinetic method. ✓