

Post graduation (M.D. - Biochemistry)

25 NOV 2024

Government Medical College, Bhavnagar

Paper-1 (General and Clinical Biochemistry - Enzymology and Biostatistics)

Date :

Code:-26039

Marks : 100

Q-1 Write detail notes on following.

(20 Marks)

- Write eicosanoid synthesis pathway in detail. Explain its regulation. Give example of the pathogenesis of the disease, occur due to its alteration and drug acting through this pathway.

Q-2 Write detail notes on following.

(20 Marks)

- Explain principle of potentiometry using Ion Selective Electrode for pH, pO_2 , pCO_2 and glucose estimation. Draw figure for each ISE based electrode and define its part with significance.

Q-3 Write short notes on following.

(20 Marks)

1. Explain primary structure relationship with protein function with two example.
2. Role of Statistical analysis in clinical biochemistry laboratory.

Q-4 Write short notes on following.

(40 Marks)

1. Define Chaperone and explain its significance.
2. Biomedical Waste of Clinical Biochemistry Laboratory and its Management
3. Major features of human mitochondrial DNA
4. Explain biochemical reason for different type of hyperuricemia and its management
5. Technic, Advantage and disadvantage of eLearning teaching and assessment method.
6. Role of Gene expression for regulation of ferritin and transferrin synthesis.
7. Define harmonization as per ISO 15189:2022 and write its need with criteria.
8. Explain any five different mechanism of chemotherapeutic drug.

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27 NOV 2024

Code - 26040

Paper-2 (Metabolism , Bioenergetics, Nutrition , Vitamins and Hormones)

Date :

Marks : 100

Q-1 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-2 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-3 Write short notes on following.

(20 Marks)

1. Brief cholesterol synthesis pathway and it's regulation. Explain each risk factor for atherosclerosis and it's prevention.
2. Creatine and creatinine synthesis and explain clinical significance of the both molecule.

Q-4 Write short notes on following.

(40 Marks)

1. Type of Thalassemia and it's genetic basis.
2. Mechanism of action of steroid hormone.
3. Metabolic changes in patient of chronic liver disease.
4. G6PD deficiency and it's clinical significant with treatment of malaria.
5. Metabolism and fates of phenylalanine.
6. Energy formation from palmitic acid through beta-oxidation.
7. Alcohol metabolism and it's effect on other metabolism.
8. Effect of pancreatitis on digestion - absorption and it's consequences.

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Paper-3 (Molecular Biology, Immunology and Cancer)

Date : 29 NOV 2024

Code :- 26041

Marks : 100

Q-1 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-2 Write detail notes on following.

(20 Marks)

- Type, structure and significant of immunoglobulin. Genetical basis of diversification of Immunoglobulin. Explain somatic hypermutation.

Q-3 Write short notes on following.

(20 Marks)

1. DNA repair mechanism.
2. RNA-Induce Silencer Complex (RISC)

Q-4 Write short notes on following.

(40 Marks)

1. Significance of Post-Translation modification and Give three examples
2. Define cDNA library and it's significance.
3. Explain " HGPRT deficiency (Lesch - Nyhan Syndrome) cause hyperuricemia."
4. Explain role of folic acid in pregnancy with molecular basis.
5. Type and effect of the mutation – explain each with example
6. Quantitative Real time PCR
7. Type and mechanism of action of Vaccines
8. RFLP

Post graduation (M.D. - Biochemistry) University Theory Examination

Paper-4 (Technique in experimental biochemistry, Recent advances)

Date : - 2 DEC 2024 Code :- 26042

Marks : 100

Q-1 Write detail notes on following.

(20 Marks)

- Write detail about type, process of implementation, interpretation of quality control practice in clinical biochemistry laboratory. What are the alternatives approaches for non-availability of commercial internal quality control materials ? Explain each approach in detail.

Q-2 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 correct these error for each three zone of the clinical biochemistry laboratory, with it's measurable objective and monitoring policy.

Q-3 Write short notes on following.

(20 Marks)

1. Policy for finding as well as updation of mean & SD
2. Define "Six Sigma". Explain use and challenges for it's implementation in clinical biochemistry laboratory.

Q-4 Write short notes on following.

(40 Marks)

1. End point vs Kinetic method
2. Order of Draw and it's significance of sequence.
3. Factor affecting protein electrophoresis
4. Dry vs Wet Chemistry Analyzer.
5. Define and strategy for Risk management.
6. Alternate approach for proficiency testing, in non-availability of commercial EQAS.
7. Advantages and disadvantages of POCT
8. Write blood and urine investigation require for differential diagnosis of renal failure