M.Sc 3rd Semester Examination, 2009

BIOMEDICAL LABORATORY SCIENCE AND MANAGEMENT

(*Fundamental Clinical Biochemistry / Advance Clinical Biochemistry*)

PAPER—X (U - 19)

Full Marks : 40

Time : 2 hours

Answer **all** questions

The figures in the right-hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

MODULE—1

(*Fundamental Clinical Biochemistry*)

1. Answer any *five* of the following : 1 x 5

(*a*) Write the biomedical application of atomic absorption photometry.

(*b*) Write the basic principle of 'Flame Photometry'.

(*c*) What are the common biochemical analysis performed of CSF specimen ?

(*d*) What is adsorption ?

(*e*) What are the various breakdown products of hemoglobin ?

(*f*) Write the biomedical application of 'Gas Chromatography'.

(*g*) Why lipaemia sera is unsuitable for biochemical analysis ?

(*h*) What do you mean by two way paper chromatography ?

2. (*a*) Describe the standard procedure for the preparation of protein free filtrate of blood sample for biochemical analysis.

(*b*) Write the best time for collecting urine specimen for routine biochemical analysis.

(*c*) What is the recommended procedure for collecting 24-hour urine specimen ?

(*d*) What is the clinical significance of collecting 24-hour urine specimen ? 3 + 1 + 2 + 2

Or

(*a*) What is clinical importance of paper chromatography ?

(*b*) Briefly describe the column chromatography technique used to separate different ingredients.

(*c*) Write the application of PCR in biomedical field. 2 + 5 + 1

3. (*a*) What do you mean by cardiac enzyme ?

(*b*) Why cardiac enzymes are important ?

(*c*) Write the name of sensitive cardiac marker enzyme.

(*d*) Briefly describe the changes of cardiac enzymes in myocardial infaretion. 1 + 1 + 1 + 4

Or

(*a*) How do you determine retention factor in chromatographic system ? Elaborate.

(*b*) What are the different types of column used in GLC ?

(*c*) How do you perform quantification of biomolecule in GLC ? 3 + 2 + 2

MODULE—2

(*Advance Clinical Biochemistry*)

1. Answer any *five* questions : 1 x 5

(*a*) What is Kernicterns ?

(*b*) Mention the reference range of CPK.

(*c*) Write the pathophysiological condition developed due to high level of uric acid in serum.

(*d*) Mention the clinical significance for the estimation of sodium bicarbonate.

(*e*) Why LDL-Cholesterol is known as bad cholesterol ?

(*f*) Mention the basic principle of ACP activity assessment in serum.

(*g*) What is Conway microdiffusion plate ?

(*h*) Write one difference between acute toxicity and chronic toxicity.

2. (*a*) Write the clinical significance of LDH in serum.

(*b*) Describe the method for the estimation of the activity of serum gamma-GT.

(*c*) Write the basic principle of α – amylase study in serum. 2 + 4 + 2

Or

(*a*) What is gastric function test ?

(*b*) Mention the chief constituents of gastric secretion.

(*c*) Write the clinical significance of gastric function test.

(*d*) Briefly describe the method for the collection of gastric juice.

(*e*) Write the importance of qualitative gastric function test. $1 + 1 + 2 + 2 + 2$

3. (*a*) Mention the clinical importance of the study of serum calcium level.

(*b*) What type of precaution you will follow during the collection and preparation of the specimen for the estimation of serum bilirubin.

(*c*) Describe the procedure for the estimation of serum Na^+ and K^+ levels. $1\frac{1}{2} + 1\frac{1}{2} + 4$

Or

(*a*) Write in brief the microdiffusion technique for the screening of toxicity assessment of volatile substances.

(*b*) Discuss the toxicity of screening of any one heavy metal in biological sample. 4 + 3
