2013

M.Sc.

1st Semester Examination

BIO-MEDICAL LAB Sc. & MANAGEMENT

PAPER—BLM-101(U-1)

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

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

Illustrate the answers wherever necessary.

Answer *all* questions.

Module—I

(*Basic Human Physiology and Anatomy*)

(Marks : 20)

1. Answer any *five* questions from the following : 1×5

(a) What is apoptosis ?

(b) Name a drug used in the treatment of gout.

(c) What is hypotension ?

(d) What do you mean by free radical ?

(e) What is atherosclerosis ?

(f) Name two markers for cancer.

(g) Write any one difference between hyperglycaemia and glucosuria.

(h) Name two diseases where oxidative stress play a major role.

2. (a) What is ROS ? Give examples.

(b) Write the importance of ROS production in normal physiology.

(c) What is the mechanism of ROS production ?

(d) Explain the homeostasis of oxidative stress regulated by ROS and anti-oxidants. (1+1)+2+2+2

Or

(a) Write the mechanism of cellular apoptosis.

(b) Differentiate between apoptosis and necrosis.

(c) What are the causes of Essential hypertension ?

3+2+3

3. (a) How the treatment of type I and type II diabetes differ ?

(b) What are the major sources of glucose in the blood stream ?

(c) Write the mechanism of blood glucose homeostasis in our body. 2+2+3

Or

(a) Describe the pathophysiology and genetics of obesity.

(b) Write the anatomical location of liver.

(c) State the position of kidney with special reference to surface anatomy. (2+1)+2+2

Module—II

(*Bio-Physical aspect of Bio-Medical Laboratory Science*)

(Marks : 20)

4. Answer any *five* questions from the following : 1×5

(a) What is the resolution limit of a transmission electron microscope ?

(b) Why phase contrast microscope is superior to light microscope ?

(c) Mention two precautions that you will take during reagent preparation.

(d) Write the full form of LASER.

(e) Why alpha is a particle and gamma is ray ?

(f) What kind of cuvette will you choose to quantitate DNA in a spectrophotometer ?

(g) What will be the approximate concentration of $[H^+]$ ion in the solution of a string acid ?

(h) What do you mean by the active site of an enzyme ?

5. (a) Place the different types of radiations as a function of wavelength.

(b) Describe various hazards of ionizing and non-ionizing radiation.

(c) What do you mean by membrane molecules weight cut-off?

$3+(1\frac{1}{2}+1\frac{1}{2})+2$

Or

(a) Define molarity and molality.

(b) How much NaCl will be required to prepare 100 ml 0·5(M) solution?

(c) Derive Herderson-Hasselbatch equation. (1+1)+3+3

6. (a) What is the difference between TEM and SEM?

(b) Write the limitations of 'Beer-Lambert's Law.

(c) What are the application of ultrafiltration in our daily life? 3+2+2

Or

(a) Derive the Michaelis-Menten equation and write its Lineweaver-Burk form.

(b) Why enzyme activity depends on pH?

(c) What is meant by saturation of the enzyme?

(3+1)+2+1