PG/IIS/BLM-202/U-12/11

M.Sc. 2nd Semester Examination, 2011

BIOMEDICAL LAB. SCI. & MANAGEMENT

PAPER—202 (Unit - 12)

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

(*Laboratory Mathematics and Statistics*)

1. Answer any *five* : 1 × 5

(*a*) There are 40 gms NaCl in 800 ml of solution. What is its molarity ?

(*b*) What is the normality of NaOH solution containing 200 gms NaOH in one litre ?

(*c*) Convert 3(N) H_2SO_4 solution to percentage.

(*d*) Define molarity of a solution.

(*e*) Find H^+ concentration of a 0·1 N HCl solution.

(*f*) What is standard error ?

(*g*) What is the application of normal distribution in statistics ?

(*h*) What is the full form of ANOVA ?

2. (*a*) **A solution containing 160 mg of glucose in 200 cc of solution is diluted 1/50. Find the concentration of the resulting solution.**

(*b*) **A urine sample is diluted 1/2 with distilled water, rediluted 1/4, 1/8 and again 1/8. Determine the concentration of the fourth dilution.**

(*c*) **Determine the amount of NaCl present in 100 gms of a 2 molal solution.** 3 + 3 + 2

Or

Find out whether or not there is a significant difference between the following two sets of data : 8

Hb% before drug therapy : 9·5, 8·5, 7·5, 6·5, 10·5, 9·5, 5·5, 8·5.

Hb% after drug therapy : 10·0, 11·5, 12·0, 13·5, 14·0, 9·5, 10·5, 11·0

Critical $t_{0\cdot05(8)}=2\cdot305$, $t_{0\cdot05(7)}=2\cdot365$, $t_{0\cdot05(6)}=2\cdot447$

3. (*a*) What is the significance of Chi-square test?

(*b*) What do you mean by $\bar{X}\pm 2\cdot58SE$?

(*c*) Give two examples of positive and negative co-relation. 2 + 2 + 3

Or

(*a*) Determine the molecular concentration of the solution resulting from mining 50 ml of a 4 molar solution with 120 ml of a 8 molar solution.

(*b*) The values listed on the lebel of a bottle of nitric acid are sp. gr. 1·42 and assay 70%. Determine the amount of HNO_3 in 1 ml solution.

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

MODULE – 2

(*Computer Application*)

4. Answer any *five* : 1 × 5

(*a*) Give one example of input devices and output devices each.

(*b*) What is the function of CPU ?

(*c*) Write down the full form of ALU and BIOS.

(*d*) What is 'cell' in MS-Excel ?

(*e*) Give two example of operating system.

(*f*) What is information ?

(*g*) What is 'LAN' ?

(*h*) What is internet ?

5. (*a*) What are the differences between hardware and software ?

(*b*) Draw the logical block diagram of a computer system.

(*c*) State the function of each of the unit in the block diagram. 2 + 2 + 4

Or

(*a*) What is operating system ?

(*b*) What are the role of operating system in computer operation ?

(*c*) Give example of two multi user operating system. 2 + 4 + 2

6. (*a*) What is database management system ?

(*b*) What are the probable entity and relationship sets involve in a Hospital Management System Database ? What are their primary keys ? Draw the E - R diagram ?

$$1\frac{1}{2}+\left(2\frac{1}{2}+2+1\right)$$

Or

(*a*) Write down the usefulness of MS-Word and MS-Excel.

(*b*) Write down the step by step approach to copy files from 'C:\bio\ to CD.

(*c*) Give three example of secondary memory.

2 + 3 + 2
