

**2008**

**M.Sc.**

**2nd Semester Examination**

**BIO-MEDICAL LAB. SCIENCE & MANAGEMENT**

**PAPER—VI (Unit - 12)**

*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.*

**(Lab. Math. Statistics & Computer Application)**

**Answer all questions.**

**Module — I**

1. Answer any *five* questions of the following : 1×5
- (a) Write the full form of ANOVA and SEM.
  - (b) What is two-tail 't-test'?
  - (c) What is pilot project?
  - (d) Write the formula for the conversion of Molar solution to micromolar solution.
  - (e) Suppose RBC count of an individual is 200 per ml. Transform this count in the unit of cubic mm of blood.
  - (f) What is Beer's Law?

*(Turn Over)*

- (g) From 36(N)  $H_2SO_4$ , prepare 10(N) 250ml of  $H_2SO_4$  solution.
- (h) Write an example of negative co-relation of bio-sensor.
2. (a) What are the importances of literature review for a project formulation ?
- (b) What are the headings of budget estimation of a project.
- (c) Write the importance of a PERT CHART or TIME BUDGETING.
- (d) Write the difference between aims and objectives of a project. 2+2+2+2

**Or**

- (a) What is non-parametric statistics ?
- (b) Write the assumption of chi-square test.
- (c) Mention the different steps for chi-square test in connection to testing the significance level. 2+2+4
3. (a) Write the mathematical basis of OD measurement of a sample in colorimeter.
- (b) Haemoglobin level of a patient is 14.5 gm/dl and his stroke volume is 90 ml. Out of total haemoglobin, 10% haemoglobin is carbomonoxihaemoglobin. Oxygen carrying capacity of haemoglobin is 1.34 ml/gm. Compute oxygen transporting capacity of that patient in each stroke of heart. 4+3

**Or**

- (a) After 1 : 10 dilution, what would be the concentration of normal saline ?

- (b) One unit of an enzyme activity is expressed in the form of unit i.e., OD variation 0.001/min = 1 unit.

The OD variation of that enzyme in 3 minutes is 0.329 and tissue conc. in the concern volume is of 2mg. Express the activity of that enzyme in the form of unit / 100 mg of tissue.

- (c) Why graphical presentation of data in semilog is more acceptable than presentation in mm graph paper?

2+3+2

## Module — II

Answer all questions.

4. Answer any five questions of the following : 1×5
- (a) What are the full form of ROM and EPROM ?
  - (b) How many rows and columns are there in an MS Excel sheet ?
  - (c) Name at least two statistical package used for data analysis in Biomedical Laboratory Science.
  - (d) What is the importance of Mathematical function S T Dev in MS Excel ?
  - (e) What is Folder in MS Windows ?
  - (f) What file extension name is used for a MS Word document by default ?
  - (g) Name one website address which is frequently used for Biomedical Science.

5. (a) What are the differences between the Computer Hardware and Software ?
- (b) Clearly specify the function of the following Hardware Components of a Computer :
- (i) input devices.
  - (ii) CPU.
  - (iii) RAM.
  - (iv) HDD. 2+6

**Or**

- (a) What is single user and multiuser operating system ? Give example.
- (b) What are the role of operating system ? Why is it called 'Resource Manager' ? 4+4
6. Write the step by step procedure to create a worksheet of RBC percentage in different age group and calculate mean, standard deviation and error. 7

**Or**

Write the step by step procedure to create an MS Excel sheet showing the Haemoglobin percentage in different age group and import it to an MS word document. 7

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