2018

M.Sc. 1st Seme. Examination

BIOMEDICAL LABORATORY SCIENCE & MANAGEMENT

PAPER—BLM-102

Full Marks : 40

Time : 2 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

Group–A

1. Answer any *four* questions : 4×2

(a) Who are the customers of biomedical laboratories ?

(b) Enumerate quality assurance as per WHO guideline.

(c) What is meant by appraisal cost ?

(d) What is reference value ?

(e) Define analytical and statistical sensitivity of a laboratory test ?

(f) What is meant by accuracy of a diagnostic test ?

(g) Define OCV.

(h) What is meant by laboratory precision ?

Group–B

Answer any *four* questions. 4×4

2. What is meant by external failure cost ? Why it should be avoided for implementing better quality cost ? 1+3

3. Haemoglobin level of a control test for 10 consecutive days are : 11, 13, 10, 12, 11, 16, 12, 11, 10, 13. Given CV is 5.4%. Analyze the above data and interpret with respect to given CV.

4. Out of 0.1% of 1.0 million people false negative result of sugar test is 400 of which false positive is twenty times less. No. of total positive cases is 4 times less of total negative results and true positive cases are 45% of false negative cases. Calculate the sensitivity of the test.

5. A group of patients presentings in a hospital with muscle ache, 30% of the patients have muscular dystrophy, 70% of patients with muscular dystrophy have > 37.5°c body temperature and 40% with dystrophy have a temperature > 37.5°c. Find out true and false positive and negative results.

6. ELISA test has sensitivity of 99% and specificity of 99%. Prevalence of HIV carriers is 0.5%. Calculate predictive values with the help of true and false positive and negative results.

7. Following blood glucose data are given for OCV and RCV. Analyse and interpret your observation
OCV – 85, 90, 95, 90, 85, 87, 90
RCV – 87, 95, 110, 100, 91, 99, 100.

8. What do you meant by technical competence ? 'A good teamwork can develop a good TQM' — explain the statement. $1\frac{1}{2}+2\frac{1}{2}$

9. What are pre-requisites for the collection of serum to prepare control sample ? Briefly elaborate the procedure of control serum preparation. 2+2

Group–C

Answer any *two* questions. 2×8

10. Deduce the total frame work of Westgurd rule with flow chart and diagramatic representation. What is meant by systematic and random error ? 6+2

11. Interpret your result according to the violation of the basic rules and multirle QC for the following two sets of control serum where control-I mean is 250 mg/dl and standard deviation is 6.0 and control-2 mean is 280 mg/dl and standard deviation is 10.

Control-1 – 250, 255, 225, 220, 205, 248, 252, 212, 241, 226.

Control-2 – 278, 270, 285, 246, 255, 275, 290, 340, 280, 272.

Define cost of conformance. 6+2

12. Graphically represent and interpret Levey-Jenning plot and interpret your results for following control sample of T_3 (ng/dl) :

80, 90, 70, 100, 120, 85, 99, 75, 110, 92, 94, 91, 85, 115, 120. 8

13. Give the statement in favour of making the foundation of a TQM system. Discuss the communication system of a TQM with proper justification of this system. What is $10\overline{X}$ rule ? 3+3+2

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