PG/IS/BLM-102/19

M.Sc. 1st Semester Examination, 2019

BIOMEDICAL LABORATORY SCIENCE AND MANAGEMENT

PAPER —BLM-102

Full Marks : 40

Time : 2 hours

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

GROUP — A

1. Answer any *four* questions of the following : 2 × 4

    (*a*) What is meant by reproducible data ?

    (*b*) Define specificity of a diagnostic test.

(c) What is the difference between control and standard sample ?

(d) What do you mean by customer satisfaction for a diagnostic laboratory ?

(e) Define RCV.

(f) What is the necessity of technical competence for a diagnostic laboratory — State with its definition.

(g) What is the thumb rule for an ideal Levy-Jenning plot ?

(h) What is appraisal cost ?

GROUP – B

2. Answer any *four* questions of the following : 4 × 4

(a) A study was conducted in the determination of TSH among 10000 population results showed 1800 True Positive (TP) people and False Negative (FN) is 9 times less than TP whereas False Positive (FP) and True Negative

(TN) are 2 times more than the sum of TP and FN. Calculate sensitivity and specificity of the test.

(b) CV of the cholesterol (mg/dl) diagnostic test is 4·5. Cholesterol level of control serum for consecutive 10 days are : 150, 200, 180, 120, 250, 150, 160, 165, 175, 145. Analyze and Interpret your result with respect to given CV.

(c) A group of patients admitted in a hospital with abdominal cramp of which 25% of patients have acute appendicitis and 60% of patients with appendicitis followed by greater that 38 °C temperature and 25% of patients without appendicitis have high temperature. Calculate positive and negative predictive value of the test.

(d) A drug company is developing a new pregnency test kit for use on an out patient basis. The company used the pregnancy test on 100 women who are known to be pregnant out of 100 women. 99 showed positive test

upon using the same test on 100 nonpregnant women. 90 showed negative result. What is the sensitivity and PPV of the test ?

(e) Blood glucose OCV are 65,70, 90, 95, 90, 85, 92 and RCV are 1-2 times higher. Analyse your data with interpretation.

(f) Discuss the framework of PDCA.

(g) Justify why precaution should be a mandatory when internal failure cost increases.

(h) Enumerate your idea about external quality control.

GROUP – C

3. Answer any *two* questions of the following : 8 × 2

(a) Discuss the different essential elements of a quality assurance programme. What is meant by leadership in a TQM system ? 6 + 2

(b) Explain the following rules with graphically : $1_{2s}, 2_{2s}, 1_{3s}, R_{4s}, 4_{1s}$ and $10\overline{X}$ 8

(*Continued*)

(*c*) Determine systematic error if any by means of the individual value 98, 101, 104, 97, 106, 100 for blood glucose. What do you mean by ethics and integrity in TQM ?   5 + 3

(*d*) Graphically represent and interpret Levy-Jenning plot of following Haemoglobin (gm/dl) data : 10, 9, 11, 10·5, 8·5, 9, 9·5, 9·2, 10, 10·5, 9·5, 10·2, 10·5, 11·0, 12·0   8

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