2015

M.Sc.

1st Semester Examination

BIO-MEDICAL LABORATORY SCIENCE & MANAGEMENT

PAPER—BLM-102

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 *Q. No. 1* and any *three* questions of the following.

1. Answer any *ten* of the followings :   10×1

   (a) Precision means :

      (i) Workers as well trained ;

      (ii) Hi-tech equipment use ;

      (iii) product have little or no variation ;

      (iv) None.

(b) Accuracy implies :

    (i) to know customer targets ;

    (ii) average performance is on target ;

    (iii) all products are of same size ;

    (iv) None.

(c) Cost of quality is really :

    (i) a way to priaritize actions ;

    (ii) cost of production ;

    (iii) cost of high quality products ;

    (iv) None.

(d) The word control implies :

    (i) inspecting result ;

    (ii) using a signal to adjust the process ;

    (iii) Management by objectives ;

    (iv) None.

(e) Manual pipetting of H_2SO_4 should done by :

    (i) Index finger ;

    (ii) Thumb finger ;

    (iii) Both of the above ;

    (iv) None.

         (Continued)

(f) Preparation of control serum requires :

    (i) Poly ethylene glycol ;

    (ii) ethylene glycol ;

    (iii) ethylene oxide ;

    (iv) None.

(g) Pooled Serum is :

    (i) Collection of ABO incompatible blood mix then and seperation of serum ;

    (ii) Collection of ABO compatible blood then mix and then seperation of serum ;

    (iii) Collection of A & B group blood then mix and seperation of serum ;

    (iv) None.

(h) Scraps of QC means :

    (i) Rejection of data ;

    (ii) Accumulation of rejected data ;

    (iii) Rejection of reagents ;

    (iv) Accumulation of rejected reagents.

(i) Difference between OCV and RCV should not exceed :

    (i) 7% ;

    (ii) 5% ;

    (iii) 10% ;

    (iv) 2%.

(j) Cusum chart can efficiently detect :

   (i) Systematic errors ;

   (ii) Random errors ;

   (iii) Technical errors ;

   (iv) All of the above.

(k) Which team works one or two hours a week :

   (i) QITs ;

   (ii) PSTs ;

   (iii) NWTs ;

   (iv) None.

(l) A good supervisor in TQM :

   (i) should always meet with the workers ;

   (ii) should listen efficiently to correct situation ;

   (iii) should give strict instruction to the workers ;

   (iv) None.

(m) In the calibration of micropipette the item is used for best testing :

   (i) Sterilized water ;

   (ii) Tap water ;

   (iii) Mercury ;

   (iv) NaCl.

(Continued)

(n) Intra assay variation describes :

    (i) variation of results obtained from repeated experiment ;

    (ii) variation of results within a data set obtained from one experiment ;

    (iii) variation of data from rejected tests ;

    (iv) None.

2. (a) What is quality ?

  (b) Who are the customers in a laboratory ?

  (c) 'Maintenance of proper quality cost demands reduction of preventive and appraisal cost along with the increase in cost of non-conformance' — do you agree with statement ? Justify your answer.

                           2+2+6

3. (a) What is the concept of WHO regarding quality assurance ?

  (b) Describe the feedback loop of total quality management framework.

  (c) What do you mean by technical competence ?

                           2+6+2

4. (a) Why location is important for the construction of a biomedical laboratory ?

  (b) What is the ideal collection place of urine and stool samples for a biomedical laboratory — answer with justification.

(c) A drug company is developing a new pregnancy test kit for use on and 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 non-pregnant women. 90 showed negative result. Calculate sensitivity, specificity, positive and negative predictive value of the test.

2+2+6

5. (a) Justify the major foundation part of a TQM system.

(b) The blood glucose control serum shows the following results :

120, 110, 140, 130, 125, 127, 150, 160, 110, 120, 122, 125, 130, 127, 128.

If the CV of the company for this sample is 7%, then you justify your result from the above data.

3+7

6. (a) Give the scheme of the Westguard rule with little justification.

(b) The mean value of glucose is 120. A series of data represents the following blood glucose level of control sample :

110, 120, 122, 115, 112, 118, 120, 130, 140, 150.

Interpret the result by Cusum Chart.

4+6

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