Total No. of Pages : 3

Register Number : **8056**

Name of the Candidate :

DIPLOMA IN QUALITY MANAGEMENT EXAMINATION MAY 2014.

140 —QUALITY ASSURANCE

Time : Three hours Maximum : 100 marks

Answer ONE questions from each Unit

Use of Statistical Tables Permitted

UNIT – I

1. (a) State and explain the advantages and limitations of acceptance sampling over 100% inspection . (10)

   (b) Explain the characteristics of OC curve. (10)

Or

2. (a) Define the following terms :

   (i) Producer's risk

   (ii) Consumer's risk

   (iii) AQL of LTPD (10)

   (b) A single sampling plan has n=110 and c=3. Compute the probabilities of acceptance of lots 0.5%, 1%, 2%, 3%, 4%, 5%, 6%, and 8% defective (10)

UNIT – II

3. (a) Construct the AOQ curve for sampling plan N=2000, n=50, C= 2. (10)

   (b) What is ATI? How will you compute the ATI for single and double sampling plans? (10)

Or

4. (a) Products are submitted for inspection in batches of size 1000. The AQL is chosen to be 15 non conformities per 100 units, and the general inspection level is III. Find a double sampling plan for reduced inspection using IS 2500 (Part I) (10)

   (b) Design a sequential sampling plan with $\alpha = 0.05$ $\beta = 0.10, P_1 = 0.02$ and $p_2 = 0.12$. (10)

UNIT – III

5. (a) Write about formation of lots and inspection levels in using IS 2500 (Part II) (10)

(b) State the advantages of disadvantages of variable sampling plans. (10)

Or

6. Describe sampling plans with variability unknown standard deviation method with single and double specification limit.

UNIT – IV

7. Explain about designing for reliability and methods for improving design reliability.

Or

8. (a) A soft drink bottling company has a lower specification limit of 3.00 liters (t). Bottles with an average content of 3.08 L (or) more are accepted 95% of the time-bootles with an average content of 2.97L or less are to be accepted 10% of the time. The standard deviation of the bottle contents is unknown . However management feels that a reasonable estimate is 0.2L. Find a variable sampling plan. (10)

(b) Describe unknown sigma variable sampling plan. (10)

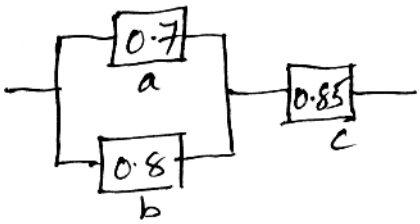
UNIT – V

9. (a) Explain the terms :

(i) Mean time between failure (5)

(ii) Mean time to failure. (5)

(b) A system consisting of three element a, b and c is having a configuratation as shown in the figure below. The reliabilities of the elements are also shown in the figure. Determine the system reliability. (10)



Or

10. (a) Draw the bath tub curve and explain the failure characteristics in detail. (10)

(b) Differentiate stand by redundancy with parallel redundancy. (10)

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