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Register Number:

Name of the Candidate:

DIPLOMA EXAMINATION, 2010

(QUALITY MANAGEMENT)

(PAPER-II)

120. FUNDAMENTALS OF STATISTICS AND COSTING

Dec.) (Time: 3 Hours

Maximum: 100 Marks

Answer ALL questions (5×20=100)

All questions carry equal marks

1. a) Discuss the different measures of central tendency. (10)

b) Calculate the mean, median an mode of the following data:

Marks less them	10	20	30	40	50	60	70	80
No. of students	5	15	98	242	267	405	425	450

(10)

(OR)

2. a) For the following data construct the histogram and super impose on it the frequency curve. From the graph, find out the 'Mode' of the distribution.

Class Intervals	7-10	11-14	15-18	19-22	23-26	27-30
Frequency	10	18	23	22	19	8

(10)

b) Find the standard deviation and mean of breaking strength of 80 test pieces of certain alloy from the following table.

Breaking strength	No.of pieces
44-46	3
46-48	24
48-50	27
50-52	21
52-54	5

(10)

3. a) A speaks truth on 75% cases and 'B' in 80% cases. In what percentage of cases are they likely to contradict each other while narrating the same incident? (10)

b) The probabilities that a TV station will receive 0,1,2,3,-------8 or at least 9 complaints after 0.01,0.03,0.07,0.15,0.19,0.18,0.14,0.12,0.09 and 0.02. What are the probabilities that after showing such a programme the station will receive?

a) at most 4 complaints

b) at least 6 compliants.

c) From 5 to 8 complaints (10)

(OR)

4. a) Urn I has 2 white and 3 black balls, Urn II has 4 white and 1 black balls and Urn III has 3 white and 4 black balls. An urn is selected at random and a ball drawn at random is found to be white. Find the probability that Urn I was selected. (10)

b) The time required to repair a machine is exponentially distributed with parameter 1/2. What is the probability that the repair exceeds 2 hrs? What is the conditional probability that the repair takes atleast 10 hrs given that the duration exceeds 9 hrs? (10)

5. a) Explain the steps in the planning of experiments for designs. (10)

b) Explain the process of two factor experimental design. (10)

(OR)

6. a) Write short notes on the following:

i) Control factors.

ii) Randomization

iii) Confounding

iv) Signal to noise ratio (10)

b) Compare the one factor and two factor experimental design models. (10)

7. a) What is Break-Even analysis? Discuss its assumptions and uses. (10)

b) From the following data, calculate

i) Profit-volume ratio

ii) Break-Even Point

iii)Margin Safety

Sales : Rs. 60,000

Variable cost: Rs. 30,000

Fixed cost : Rs.18,000

(OR)

8. a) Explain the profit-volume analysis with its applications. (10)

b) Calculate the P/V ratio and Break-Even point from the following particulars. (10)

Sales : Rs 5,00,000

Fixed cost : Rs 1,00,000

Profit : Rs 1,50,000

9. a)Discuss the following:

i) Cost center ii) Process losses iii) Product and by –product costing (10)

b) Discuss the various elements of costs. (10)

(OR)

10. a) Explain how to prepare a cost sheet with an example. (10)

b) Discuss the significance of standard costing and tool for controlling the cost.

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