

Sl No.	Demand Litres	Probability
7	58	0.15
8	60	0.10
9	62	0.05
10	64	0.05

If each day demand is independent of previous days demand. How much litres should be ordered every day?

Or

- (b) Describe Bayesian Approach to decision making.

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M.Com. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2013.

First Semester

Commerce

QUANTITATIVE TECHNIQUES

(For those who joined in July 2012 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1. The probability of drawing a spade from a pack of card is _____.

(a) $\frac{2}{52}$

(b) $\frac{4}{52}$

(c) $\frac{1}{4}$

(d) $\frac{1}{52}$



2. A normal curve is _____ shaped and has a single peak.
(a) Square (b) Bell
(c) 'u' (d) 'v'
3. The number of degrees of freedom in a 3×3 contingency table is
(a) 3 (b) 4
(c) 5 (d) 8
4. Large sample theory is applicable when _____.
(a) $N > 30$ (b) $N = 30$
(c) $N < 30$ (d) $N \pm 30$
5. The expected frequency for any cell in a contingency table should not be less than _____.
(a) Five (b) Ten
(c) Three (d) Twenty
6. The _____ test is based on the assumption of normal distribution.
(a) Z (b) T
(c) F (d) χ^2

7. Student's t-distribution was developed by
(a) Karl Pearson (b) Fisher
(c) Laspeyrs (d) Gosset
8. The COL is expanded on _____.
(a) Conditional opportunity loss
(b) Calculated or leverage
(c) Conditional otherwise loss
(d) All of these
9. Incase of _____ we know the state of nature.
(a) Poisson (b) Uncertainty
(c) Probability (d) All of these
10. _____ is a norm to guide action under uncertainty when the pay-off of various alternatives and likely events one known.
(a) Maximum (b) Maximax
(c) Minimaxi regret (d) All



PART B — ($5 \times 5 = 25$ marks)

Answer ALL the questions, choosing either (a) or (b).

11. (a) Describe decision free analysis.

Or

- (b) Explain the various decision rules and their relevance to each decision problem.

12. (a) Two cards are drawn from a pack of cards at random. What is the probability that it will be

- (i) A diamond and a heart and
(ii) A king and a queen.

Or

- (b) Obtain the binomial distribution for which the mean is 20 and the variance is 15.

13. (a) In an hospital 480 female and 520 male babies were born in a week. Do these forms confirm the hypothesis that males and females are born in equal number?

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- (b) The life time of electric bulbs for a random sample of 10 from a large consignment gave the following :

Item :	1	2	3	4	5	6	7	8	9	10
Life in '000 hours :	4.2	4.6	3.9	4.1	5.2	3.8	3.9	4.3	4.4	5.6

Can we accept the hypothesis that the average life time of bulbs in 4000 hours.

14. (a) In experiment on the immunization of goats from anthrox, the following results were obtained. Derive your inference on the vaccine.

	Died of Anthrox	Survived	Total
Inoculated with vaccine	2	10	12
Non inoculated	6	6	12
Total	8	16	24

Or

- (b) Narrate the characteristics of chi square test.

15. (a) Narrate the causes of variation in quality.

Or

- (b) Write about acceptance sampling.

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PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Explain the different methods of sampling.

Or

- (b) A dice is thrown 49152 times and of these 25145 yielded either 4 or 5 or 6. Is this consistent with the hypothesis that the dice must be unbiased?

17. (a) The results of a particular examination is as follows :

	Pass with distinction	Pass	Fail
Result % of candidates	10	60	30

It is known that a candidate gets plucked if he obtains less than 40 marks out of 100, while he must obtain at least 75 marks to pass with distinction. Determine the mean and standard deviation of the distribution of marks assuming this to be normal.

Or

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- (b) The average daily sale of 500 branch offices was Rs. 150 thousand and the S.D. is Rs. 15 thousand. Assume the distribution to be normal indicate how many branches have sales between

(i) Rs. 1,20,000 and Rs. 1,45,000

(ii) Rs. 1,40,000 and Rs. 1,65,000.

18. (a) Four identical coins are tossed 160 times and the number of heads appearing each time is recorded and given below :

No. of heads : 0 1 2 3 4

Frequency : 14 30 20 35 11

Test the hypothesis that the coins are perfect.

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(b) Find the value of F.

Sample 1 : 32 34 33 35 37

Sample 2 : 34 33 36 37 35

Sample 3 : 31 34 35 32 36

Sample 4 : 29 26 30 28 26

19. (a) Explain the techniques used for statistical quality control.

Or

(b) Given below are the values of sample mean ($\bar{X}$) and the range (R) for ten samples of size 5 each. Draw the mean and range charts and comment

Sample No.	$\bar{X}$	R
1	43	5
2	49	6
3	37	5
4	44	7
5	45	7

Sample No.	$\bar{X}$	R
6	37	4
7	51	8
8	46	6
9	43	4
10	47	6

20. (a) A milk man buys milk at Rs. 30 per litre and sells for Rs. 35 per litre. Unsold milk has to be poured away. The demand and probability are given

Sl No.	Demand Litres	Probability
1	46	0.01
2	48	0.03
3	50	0.06
4	52	0.10
5	54	0.20
6	56	0.25

