[11007]

SPECIAL DRIVE - DEC - 2022
M.B.A. DEGREE EXAMINATIONS
FIRST SEMESTER
Paper - VII : QUANTITATIVE TECHNIQUES FOR MANAGEMENT
(2016-17 and 2017-18 Admitted Batches)

Time : 3 Hours   **Maximum Marks: 75**

SECTION - A

I.   Answer any **FIVE** questions not exceeding one page each.   **(5×4=20)**

1.   Explain the meaning and definition of quantitative techniques.

2.   Define mode. What are its merits, demerits and uses?

3.   Give the three definitions of probability. Give examples.

4.   Explain sampling distribution. Describe the utility of standard error.

5.   Explain the steps to test a hypothesis.

6.   Distinguish between correlation and regression.

7.   Define normal distribution. Explain its importance.

8.   Explain the test for difference of proportions.

SECTION - B

II.   Answer **ALL** the following not exceeding 4 pages each.   **(5×8=40)**

1.   a)   Explain the scope of quantitative techniques. Give its applications.

(OR)

b)   Explain the importance of quantitative techniques. Describe its applications in business decision making.

2. a) Calculate Karl-Pearson's coefficient of Skewness for the following data:

Age group :	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70 and above
Frequency :	10	12	24	32	29	11	3	1

(OR)

b) Find the two lines of regression from the following data:

Sales :	91	97	108	121	67	124	51	73	111	57
Purchases :	71	75	69	97	70	91	39	61	80	47

3. a) A factory produces a certain type of output by three types of machines. The respective daily production figures are Machine I: 3,000 units, Machine II: 2,500 units, and Machine III : 4,500 units. Past experience shows that 1% of the output produced by Machine I is defective. The corresponding fraction of defectives for the other two machines are 1.2% and 2% respectively. An item is drawn at random from the day's production run and is found to be defective. What is the probability that it comes from the output of

i) Machine I and

ii) Machine III ?

(OR)

b) In a manufacturing organisation the distribution of wages was perfectly normal and the number of workers employed in the ogranisation was 5,000. The mean wages of the workers were calculated as Rs.800 p.m and the standard deviation was worked out to be Rs.200. On the basis of the information estimate

i)   The percentage of workers getting salary between Rs.700 and Rs.900.

ii)   Number of workers getting salary above Rs.1,000.

iii) Percentage of workers getting salary below Rs.600.

4. a) Ten objects are chosen at random from a large population and their weights are found to be in gms: 63, 63, 64, 65, 66, 69, 69, 70, 70,71. In the light of the above data, discuss the suggestion that the mean weight in the universe is 65 gms.

(OR)

b) A population consists of the numbers 1, 3, 5, 7, and 9.

i)   Estimate all possible samples of size two which can be drawn from the population without replacement.

ii)   Show that the mean of the sampling distribution of the sample means is equal to the population mean.

iii) Calculate variance of the sampling distribution of the sample mean.

5. a) An I.Q test was administered to 7 persons before and after they are trained. The results are given below:

Candidates:	:	I	II	III	IV	V	VI	VII
I.Q. Before training	:	110	120	123	132	125	130	129
I.Q. After training	:	120	118	125	136	121	124	134

Test whether there is any change in I.Q after the training program.

(OR)

b) From salesmen were posted in different areas by a company. The number of units of commodity X sold by them are as follows:

A   20   23   28   29   31

B   25   32   30   21   27

C   23   28   35   18   17

D   15   21   19   25   22

On the basis of the above information can it be concluded that there is a significant difference in the performance of the four salesmen.

SECTION - C

Case Study

(Compulsory)

(1×15=15)

III. 1,000 sets of trails for an event of small probability, observed frequencies of the number of successes proved to be:

No. of Successes	:	0	1	2	3	4	5	6	7
Frequency	:	305	365	210	80	28	9	2	1

Discuss the possibility of the number of successes following the Poisson distribution. Also test the goodness of fit of the distribution.

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