Reg. No. :

Question Paper Code : 40140

M.B.A. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2018.

First Semester

BA 5106 — STATISTICS FOR MANAGEMENT

(Regulations 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the theorem of total Probability.
2. Write the mean and variance of uniform distribution.
3. Define sampling distribution.
4. What is called interval estimation?
5. State critical value.
6. Write down the format of the ANOVA table for one factor of classification.
7. Write the formula for Kruskal Wallis test.
8. What are the uses of Chi-square distribution?
9. Define rank correlation-coefficient and write down the formula.
10. Write down the regression co-efficients.

PART B — (5 × 13 = 65 marks)

11. (a) (i) A bag contains 5 balls and it is not known how many of them are white. Two balls are drawn at random from the bag and they are noted to be white. What is the probability that all the balls in the bag are white?

(ii) Derive the mean and variance of Poisson distribution.

Or

(b) (i) An irregular 6-faced die is such that the probability that it gives 3 even numbers in the 5th throws is twice the probability that it gives 2 even numbers in 5 throws. How many sets of exactly 5 trails can be expected to give no even number out of 2500 sets.

(ii) If the actual amount of instant coffee which a filling machine puts into 6-ounce jar is a RV having a normal distribution with SD = 0.05 ounce and if only 3% of the jars are to contain less than 6 ouncess of coffee, what must be the mean fill of these jars?

12. (a) A distribution with unknown mean μ has variance equal to 1.5. Use central limit theorem to find how large a sample should be taken from the distribution in order that the probability will be atleast 0.95 that the sample mean will be within 0.5 of the population mean.

Or

(b) The mean value of a random sample of 60 items was found to be 145 with a SD of 40. Find the 95% confidence limits for the population mean. What size of the sample is required to estimate the population mean within five of its actual value with 95% or more confidence using the sample mean.

13. (a) (i) Two independent samples of size 8 and 7 contained following values.

Sample I :	19	17	15	21	16	18	16	14
Sample II :	15	14	15	19	15	18	16	

Is the difference between the sample mean significant.

(ii) Two independent samples of eight and seven items respectively following values of the variable

Sample I :	9	11	13	11	15	9	12	14
Sample II :	10	12	10	14	9	8	10	

Do the two estimates of population variance differ significantly at 5% level of significance?

Or

(b) Four doctors each test four treatments for a certain disease and observe the number of days each patient takes to recover. The results are as follows. (recovery time in days)

Doctor	Treatment			
	1	2	3	4
A	10	14	19	20
B	11	15	17	21
C	9	12	16	19
D	8	13	17	20

Discuss the difference between (i) doctors and (ii) treatments.

PART C — (1 × 15 = 15 marks)

16. (a) Obtain the equations of the regression lines from the following data. Using method of least square. Hence find the co-efficient correlation between x and y. Also estimate the value of

(i) y when $x = 38$

(ii) x, when $y = 18$.

x:	20	26	29	30	31	31	34	35
y:	20	20	21	29	27	24	27	31

Or

(b) Find the standard error of estimate of y on x and x on y from the following data :

x:	1	2	3	4	5
y:	2	5	9	13	14