Reg. No. : | | | | | | | | | | | | |

Y 1602

M.B.A. DEGREE EXAMINATION, AUGUST/SEPTEMBER 2008.

First Semester

DBA 1602 — STATISTICS FOR MANAGEMENT

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What are Mutually exclusive events and equally likely events?

2. Define Baye's theorem.

3. Name various sampling techniques.

4. Explain Central limit theorem.

5. State where Poisson Distribution can be applied.

6. What are the differences between Two-Tailed and One-Tailed tests?

7. Draw the format of ANOVA table.

8. When do you use Non-parametric methods?

9. What are different components of Time series analysis?

10. Distinguish between correlation and regression.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the characteristics of Binomial distribution? (4)

(ii) In quality check it is found that one in 500 products is defective. If 100 such products as one container. Find the probability that, in container :

(1) No defects (4)

(2) Less than 2 defects (4)

(3) One or more defect. (4)

Or

(b) Data Monitor Inc., has conducted a study on the starting salaries offered to management students across various B-schools for the posts of management trainees. A group of 10,000 students was normally distributed with mean of Rs. 17,600 and a standard distribution of Rs. 7806. Find :

(i) Number of students whose offered salary is more than Rs. 25,000 (4)

(ii) Percentage of students fall between Rs. 10,000 and Rs. 20,000 (6)

(iii) What is the lowest salary offered among the highest 500 students. (6)

12. (a) (i) What is Stratified Sampling technique? How can it be applied in taking samples? (4)

(ii) A market research firm wants to study salaries of 3000 management trainees. How large a sample size it should take in order to estimate the mean annual earnings within plus or minus Rs. 1,000 and at 95 percent confidence level? The standard deviation of population is known to be Rs. 3,000. (12)

Or

(b) A random sample of 100 articles taken from a batch of 2696 articles contains 5 defective articles. Find 95 percent confidence interval for the proportion of defective articles in the whole batch. (16)

13. (a) A random sample of 10 items on machine-I, the number of defect are found as 10 6 16 17 13 12 8 14 15 9.

For another random sample of 12 items on machine-II, the number of defects are 7 13 22 15 12 14 18 8 21 23 10 17.

Test whether sample-I and sample-II differ significantly as regarding the number of defects.

(You can use t for 20 DoF at 5% level of significance is 2.09). (16)

Or

(b) In a locality 100 persons were randomly selected and asked about their educational achievements. The results are given as follows :

		Education			
		Middle	HighSchool	College	Total
Sex	Male	10	15	25	50
	Female	25	10	15	50
	Total	35	25	40	100

Can you say education depends on Gender?

(You can use Ψ^2 for 20 DoF at 5% level of significance is 5.99) (16)

14. (a) Ten students got the following percentage of marks in Mathematics and Statistics :

Student Number	1	2	3	4	5	6	7	8	9	10
Marks in Mathematics	78	36	98	25	75	82	90	62	65	39
Marks in Statistics	84	51	91	60	68	62	86	58	53	47

Calculate the rank correlation coefficient. (16)

Or

(b) Test the hypothesis of no difference between the ages of male and female employees of a certain company using Mann-Whitney U test for the sample data. Use 0.1 level of significance. (16)

Male employee	31	25	38	33	42	40	44	26	43	35
Female employee	44	30	34	47	35	32	35	47	48	34

15. (a) Calculate the coefficient of correlation from the data reported on 66 villages between total arable land to the rice cultivated land in hectares. (16)

Arable land	0–500	500–1000	1000–1500	1500–2000	2000–2500	Total
Rice cultivated land						
0–200	12	6	–	–	–	18
200–400	2	18	4	2	1	27
400–600	–	4	7	3	–	14
600–800	–	1	–	2	1	4
800–1000	–	–	–	1	2	3
Total	14	29	11	8	4	66

Or

(b) You are given the data relating to purchases and sales. Obtain the regression equation of sales. Estimate sales when the purchases equal 100. (16)

Purchases	62	72	98	76	81	56	76	92	88	49
Sales	112	124	131	117	132	96	120	136	97	85