M.B.A. DEGREE EXAMINATIONS: NOV/DEC 2010

First Trimester

MASTER OF BUSINESS ADMINISTRATION

MBA502: Data Analysis and Decision Making

Time: Three Hours   **Maximum Marks: 100**

Answer ALL the Questions

PART A (1 x 20 = 20 Marks)

Case Study:

1. (i) Find the median and mode for the following data.   (10)

Class Interval	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	3	5	7	10	12	15	14	4	2	8

  (ii) An analysis of monthly wages paid to the workers of two firms A and B belonging to the

    same industry gives the following results:

	Firm A	Firm B
No. of workers	500	600
Average daily wages (Rs.)	186	175
Variance of distribution of wages	81	100

(1) Which firm, A or B, has a larger wage bill?

(2) In which firm, A or B, is there greater variability in individual wages?

(3) calculate the average daily wages of all the workers of A and B taken together

(4) calculate the variance of the distribution of wages of all the workers of A and B taken

    together.   (10)

PART B (10 x 2 = 20 Marks)

2. Name the two methods of data arrangement.

3. Define nominal scale.

4. Mention two methods of pictorial data presentation.

5. What is the difference between frequency distribution and relative frequency distribution?

6. The marks obtained by 10 students in an examination are as follows: 56, 24, 71, 69, 82, 97,

39, 55, 78, 60. Find the co-efficient of range.

7. Define percentile.

8. State addition law of probability for two events.

9. For a binomial distribution of mean 4 and variance 2, find the probability of success p.

10. State the two different rank sum tests.

11. Define Type I error and Type II error.

PART C (4 x 15 = 60 Marks)

12. (a) What is primary data? Explain the different methods of collecting primary data.

(OR)

(b) What is secondary data? Explain the different methods of collecting secondary data..

13. (a) (i) Draw histogram and frequency polygon on the basis of following data: (8)

Midvale	10-20	20-30	30-40	40-50	50-60	60-70	70-80
frequency	10	15	32	42	26	12	9

(ii) Write the merits and demerits of graphical method of data representation. (7)

(OR)

(b) The frequency distribution of marks in mathematics obtained by 100 students in a class is given below:

Marks	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
No. of students	8	10	25	31	11	12	2	1

Draw the ogives (both more than and less than types)for this distribution and use them to determine the median corresponding to cumulative frequency N/2.

14. (a) (i) 20% of the bolts produced by a machine are defective. Using binomial distribution, determine the probability that out of 4 bolts chosen at random (i) exactly one is defective (ii) atmost 2 will be defective. (8)

(ii) From a well shuffled deck of 52 playing cards, 4 cards are selected at random. Find the probability that the selected cards are

(i) 3 spades and 1 heart

(ii) 2 kings, 1 ace and 1 queen (7)

(OR)

(b) (i) In a test of 2000 electric bulbs it was found that the life of a particular make was normally distributed with an average life of 2040hrs and SD of 60 hrs.

Estimate (i) The number of bulbs likely to burn for more than 2150 hrs (ii) less than 1950hrs and (iii) more than 1920 hrs but less than 2160hrs. (10)

(ii) A and B are events with $P(A) = \frac{3}{8}, P(B) = \frac{1}{2}$ and $P(A \cap B) = \frac{1}{4}$. Find $P(A^c \cap B^c)$. (5)

15. (a) (i) The heights of six randomly chosen sailors in inches are: 63, 65, 68, 69, 71 and 72. Those of 10 randomly chosen soldiers are 61, 62, 65, 66, 69, 70, 71, 72 and 73.

Discuss the light that these throw on the suggestion that sailors are on the average taller than soldiers. (8)

(ii) The following table gives the number of aircraft accidents that occur during the various days of a week. Find whether the accidents are uniformly distributed over the week. (7)

Days	Sun	Mon	Tue	Wed	Thu	Fri	Sat
No. of accidents	14	16	8	12	11	9	14

(OR)

(b) (i) Random samples drawn from two places gave the following data relating to the heights of male adults:

	Place A	Place B
Mean height (in inches)	68.50	65.50
S.D. (in inches)	2.5	3.0
No. of adult males in sample	1200	1500

Test at 5% level, the hypothesis that the mean height is the same for male adults in the two places. (5)

(ii) Use the rank sum test at 5% LOS to determine if the additional instruction affects the average marks from a Mathematics class of 12 equally capable students using a programmed material, five are selected at random and given additional instructions by the teacher. The results of the final exams are as follows: (10)

Marks of students given additional Instruction	87	69	78	91	80		
Marks of students not given additional instruction	75	88	64	82	93	79	67

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