Register Number :

Name of the Candidate :

6 7 8 4

B.B.A. DEGREE EXAMINATION, 2008

APPLIED MANAGEMENT

(FIRST YEAR)

(PART - III)

(PAPER - III)

150. MATHEMATICS

December] [Time : 3 Hours

Maximum : 100 Marks

SECTION - A (10 × 2 = 20)

Answer any TEN questions.
All questions carries equal marks.

1. Explain briefly :

   (a) Equal and finite sets.

   (b) Slope of the line Ax + By + C = 0

   (c) Unit matrix and zero matrix.

Turn over

(d) Simple and compound interest.

(e) Skewness and curtosis.

(f) Rank correlation.

(g) Index numbers.

(h) Optimal solution in LPP.

(i) Basic and Basic feasible solution in LPP.

(j) North West corner method.

(h) PERT.

SECTION - B (4 × 10 = 40)

Answer any FOUR questions.
All questions carries equal marks.

2. Use Venn diagram to prove

$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

11. Find the critical path for the following project.

Job :	1 – 2	2 – 3	2 – 4	3 – 4	3 – 5	4 – 6
Deviation :	2	7	3	3	5	3

Job :	5 – 8	6 – 7	6 – 10	7 – 9	8 – 9	9 – 10
Deviation :	5	8	4	4	7	7

9. (a) Compute the Karl - Pearson co-efficient of correlation by Karl - Pearson's method.

x :	0	10	20	30	40	50	60	70	80	90
y :	100	98	95	90	80	50	35	23	13	5

(b) Two variables gave the following data : Obtain the 2 regression equation and find the most likely value of y when $x = 24$.

$\overline{x} = 20$, $\overline{y} = 15$; $\sigma_x = 4$, $\sigma_y = 4$

and $\Omega = +7$.

10. Use VAM method or MODI to solve the TPP.

	Plant				
Market	P_1	P_2	P_3	P_4	Requirement
M_1	19	14	23	11	11
M_2	15	16	12	21	13
M_3	30	25	16	39	19
Availability	6	10	12	15	

3. If

$$A = \begin{pmatrix} 2 & -1 & 3 \\ -5 & 1 & 4 \\ 0 & -2 & 1 \end{pmatrix}$$

and

$$B = \begin{pmatrix} -1 & 4 & 2 \\ 2 & -2 & 5 \\ 3 & 1 & 0 \end{pmatrix}$$

prove that $(AB)^T = B^T A^T$.

4. Compute the quartile deviation and its co-efficient for the following frequency distribution.

Marks above :	0	10	20	30	40	50	60	70
Production :	150	142	130	120	72	30	12	4

Turn over

5. Solve by graphically method the LPP :

Maximize :

$$9x + 16y$$

Subject to :

$$x + 4y \leq 180$$

$$2x + 3y \leq 90$$

$$x, y \geq 0.$$

6. Solve the following problem by Least cost Method :

		To			
		W_1	W_2	W_3	Supply
From	F_1	2	7	4	5
	F_2	3	3	1	8
	F_3	5	4	7	7
	F_4	1	6	2	14
Demand		7	9	18	34

7. Construct a PERT Diagram for the following project.

Activity :	1 – 2	1 – 3	1 – 7	2 – 3	3 – 6	4 – 4
Duration :	2	2	1	4	1	5

Activity :	4 – 8	5 – 6	6 – 9	7 – 8	8 – 9
Duration :	8	4	3	3	3

SECTION - C (2 × 20 = 40)

Answer any TWO questions.
All questions carries equal marks.

8. (a) Find the inverse of

$$\begin{pmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 2 \end{pmatrix}$$

(b) The true discount on a bill for Rs.3677 is Rs. 27 at 4½ %. Find how many days before the due date the bill is discounted ?

Turn over