PVP 12

Code: **BA1T5**

I MBA-I Semester-Special Supplementary Examinations March 2019

QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

Duration: 3hours Max. Marks: 70

SECTION-A

1. Answer any FIVE of the following: 5 x 2 = 10 M

a) What is the difference between Measures of central tendency and Measures of dispersion?

b) A card is drawn from well shuffled pack of 52 cards. Find probability of getting either red card or king.

c) If the probability of a defective bolt is 0.2 then find mean and variance for the Binomial distribution of bolts in a total of 400.

d) If the variance of Poisson variate is 3 then find $P(0 \leq x \leq 1)$?

e) When do you use t-test and write applications of t-test?

f) When the transportation problem is said to be unbalanced and how do you convert into balanced transportation problem?

g) Write the procedure to find Saddle point.

h) Write the Standard form to the following LPP

Min.Z= $5x+6y$

s.t $x-y \leq 4$; $3x+7y \leq -3$; $x,y \geq 0$

SECTION – B

Answer the following: 5 x 10 = 50 M

2. a) Solve the following equations by Matrix method.
$2x - y + 2z = 2$; $x + 10y - 3z = 5$; $-x + y + z = -3$

(OR)

b) The arithmetic mean and the standard deviation of a set of 9 items are 43 and 5 respectively. If an item of a value 63 is added to the set, find the mean and standard deviation of 10 items given.

3. a) i) In a class 40 % students read mathematics, 25 % read physics and 15 % both mathematics and physics. One student is selected at random find the following:
1) The probability that he reads mathematics if it is known that he reads physics.
2) The probability that he reads physics if he reads mathematics.

ii) A random variable x has the following probability distribution

X	-2	-1	0	1	2	3
P(x)	0.1	K	0.2	2k	0.3	3k

Find:
1) k 2) $p(x < 2)$ and $p(-2 < x < 2)$.

(OR)

b) Suppose the weights of 800 students are normally distributed with mean $\mu=140$ pounds and standard deviation 10 pounds. Find the number of students whose weights are
(i) between 138 and 148 pounds
(ii) more than 152 pounds
(iii) less than 140 pounds.

4. a) i) Discuss Type I and Type II errors.
ii) The mean height of 50 male students who participated in sports is 68.2 inches with a standard deviation of 2.5. The mean height

of 50 male students who have not participated in sports is 67.2 inches with a standard deviation of 2.8. Test the hypothesis that the height of students who participated in sports is more than the students who have not participated in sports.

(OR)

b) i) Explain the procedure to test for single mean in case of small sample.

ii) Scores obtained in a shooting competition by 10 students before and after intensive training are given below

Before	67	24	57	55	63	54	56	68	33	43
After	70	38	58	58	56	67	68	75	42	38

Test whether the intensive training is useful at 0.05 level of significance.

5. a) Solve the following LPP by graphical method.

Max.Z=3x+4y

s.t $5x+4y \le 200$; $3x+5y \le 150$; $5x+4y \ge 100$; $8x+4y \ge 80$; $x, y \ge 0$

(OR)

b) i) Determine minimum cost to the following Transportation problem using Vogel's Approximation Method

		Sales counters			
		S1	S2	S3	Supply
Factories	F1	7	5	2	15
	F2	6	4	9	20
	F3	5	7	6	15
	Demand	20	20	10	

ii) Discuss Matrix Minimum Method to find Initial Basic Feasible Solution to the Transportation problem.

6.a) i) Explain graphical method to solve 2 x m and m x 2 games.

ii) Find the optimal strategies and value of the game to the following

		Player B		
Player A		I	II	III
	I	-3	-2	-3
	II	2	0	2
	III	5	-2	-4

(OR)

b) i) Solve the following game by dominance rules.

		Player B		
		I	II	III
Player A	I	1	7	2
	II	6	2	7
	III	5	1	6

ii) Explain Maximin-Minimax Strategies.

SECTION- C

7. Case study **1x10=10 M**

A company has 3 warehouses A, B and C of capacities 50, 60 and 40 respectively and 4 stores P, Q, R and S of capacities 20, 70, 50 and 10 respectively. Cost of shipping one unit of commodity from various warehouses to differ rent stores are as follows:

Warehouse/Stores	P	Q	R	S
A	5	15	7	6
B	8	7	9	1
C	1.5	9	8	8

Workout the transportation schedule and then find the optimum transportation cost?