PVP21

Code No: **21BA1T5**

I MBA - I Semester Regular/ Supplementary Examinations
FEBRUARY – 2024

QUANTITATIVE ANALYSIS FOR BUSINESS DECISION

Duration: 3 Hours Max. Marks: 70

Note: 1. This question paper contains three Parts-A, Part-B and Part-C.
2. Part-A contains 8 short answer questions. Answer any **Five** Questions. Each Question carries 2 Marks.
3. Part-B contains 5 essay questions with an internal choice from each unit. Each Question carries 10 marks.
4. Part-C contains one Case Study for 10 Marks.
5. All parts of Question paper must be answered in one place

BL – Blooms Level CO – Course Outcome

PART - A

		BL	CO
1. a)	Illustrate the attributes of Standard Deviation.	L2	CO1
1. b)	Demonstrate the characteristics of Binomial Distribution.	L2	CO3
1. c)	How to interpret the Correlation Coefficient?	L2	CO2
1. d)	How can you identify that a two-person zero-sum game is useful in game theory?	L2	CO4
1. e)	Define Hypothesis and classify the different types of hypothesis.	L2	CO5
1. f)	Explain the concept of Linear Programming.	L3	CO1
1. g)	Compare Type- I and Type – II Errors.	L5	CO2
1. h)	Discuss about Baye's Theorm.	L2	CO1

PART – B

			BL	CO	Max. Marks
		UNIT – I			
2.	a)	Illustrate the attributes of Mean, Median and Mode in research.	L3	CO1	5 M
	b)	Find the Correlation Coefficient for the following and interpret the results.	L4	CO2	5 M

X	12	15	17	16	13
Y	125	148	187	174	142

<table>
<tr><td colspan="6">OR</td></tr>
<tr><td>3.</td><td>a)</td><td>Determine the Regression Equation to the following data.
<table>
<tr><td>X</td><td>8</td><td>9</td><td>11</td><td>10</td><td>7</td></tr>
<tr><td>Y</td><td>12</td><td>15</td><td>19</td><td>17</td><td>11</td></tr>
</table></td><td>L3</td><td>CO1</td><td>5 M</td></tr>
<tr><td></td><td>b)</td><td>Define Kurtosis and explain the types and importance.</td><td>L4</td><td>CO2</td><td>5 M</td></tr>
<tr><td colspan="6"><u>UNIT – II</u></td></tr>
<tr><td>4.</td><td>a)</td><td>Categorize the attributes of Additional and Multiplication Theorem.</td><td>L3</td><td>CO3</td><td>5 M</td></tr>
<tr><td></td><td>b)</td><td>If you roll a fair dice, what is the probability that the number you get is:
i) 5 ii) An odd number
iii) A number greater than 1
iv) A multiple of 4</td><td>L3</td><td>CO3</td><td>5 M</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td>5.</td><td>a)</td><td>A Card is taken at a random from a standard 52-card pack of playing cards. What is the probability that is:
i) A Seven ii) A Heart
iii) A Red Card iv) A Red Six.</td><td>L3</td><td>CO3</td><td>5 M</td></tr>
<tr><td></td><td>b)</td><td>Suppose it has been observed that, on average, 180 cars per hour pass a specified point on a particular road in the morning rush hour. Due to impending road works it is estimated that congestion will occur closer to the city centre if more than 5 cars pass the point in any one minute. What is the probability of congestion occurring?</td><td>L3</td><td>CO3</td><td>5 M</td></tr>
<tr><td colspan="6"><u>UNIT-III</u></td></tr>
<tr><td>6.</td><td>a)</td><td>Find is there any significant difference in the given samples 12, 13, 17, 15, 19, 14 and 22 if the population mean is estimated as 16. Use the level of significance is 0.01.</td><td>L1</td><td>CO3</td><td>5 M</td></tr>
<tr><td></td><td>b)</td><td>Explain the stepwise procedure for the hypothesis testing.</td><td>L3</td><td>CO1</td><td>5 M</td></tr>
</table>

<table>
<tr><td colspan="6">OR</td></tr>
<tr><td>7.</td><td>a)</td><td>Find there is any significant difference in the given two sets of samples by using α = 0.05.
<table>
<tr><th colspan="4">Set - A</th><th colspan="5">Set - B</th></tr>
<tr><td>11</td><td>8</td><td>7</td><td>14</td><td>9</td><td>5</td><td>10</td><td>12</td><td>16</td></tr>
<tr><td>9</td><td>5</td><td>12</td><td>13</td><td>8</td><td>11</td><td>8</td><td>17</td><td>14</td></tr>
</table></td><td>L4</td><td>CO2</td><td>5 M</td></tr>
<tr><td></td><td>b)</td><td>In a given sample means of two populations are 8.75 and 9.25 and the standard deviations are 1.5 and 1.75. If the sample sizes are 34 and 37 find is there any significant difference in the given samples by using α = 0.01.</td><td>L4</td><td>CO2</td><td>5 M</td></tr>
<tr><td colspan="6"><u>UNIT – IV</u></td></tr>
<tr><td>8.</td><td>a)</td><td>Mention the steps involved in Simplex Method.</td><td>L4</td><td>CO4</td><td>5 M</td></tr>
<tr><td></td><td>b)</td><td>A factory manufactures two products A and B. To manufacture one unit of A, 1.5 machine hours and 2.5 labour hours are required. To manufacture product B, 2.5 machine hours and 1.5 labour hours are required. In a month, 300 machine hours and 240 labour hours are available. Profit per unit for A is Rs. 50 and for B is Rs. 40. Formulate as LPP.</td><td>L4</td><td>CO4</td><td>5 M</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td>9.</td><td>a)</td><td>What are the components of LPP? What is the significance of non-negativity restriction?</td><td>L3</td><td>CO4</td><td>5 M</td></tr>
<tr><td></td><td>b)</td><td>A firm makes two products P1 & P2 and has production capacity of 18 tonnes per day. P1 & P2 require same production capacity. The firm must supply at least 4 t of P1 & 6 t of P2 per day. Each tonne of P1 & P2 requires 60 hours of machine work each. Maximum machine hours available are 720. Profit per tonne for P1 is Rs.160 & P2 is Rs.240. Find optimal solution by graphical method.</td><td>L3</td><td>CO4</td><td>5 M</td></tr>
</table>

UNIT – V

10.	a)	Define Hungarian Method and explain about the steps involved in it.	L3	CO4	5 M
	b)	Illustrate the following concepts with suitable examples: i) Fair game ii) Pure Strategy iii) Saddle Point	L3	CO4	5 M
		OR			
11.	a)	Use the Hungarian method to solve the given assignment problem stated in the table. The entries in the matrix represent each man's processing time in hours.	L4	CO5	5 M
	b)	Summarize about the Pure and Mixed strategy game.	L3	CO4	5 M

$$\begin{bmatrix} & I & II & III & IV & V \\ 1 & 20 & 15 & 18 & 20 & 25 \\ 2 & 18 & 20 & 12 & 14 & 15 \\ 3 & 21 & 23 & 25 & 27 & 25 \\ 4 & 17 & 18 & 21 & 23 & 20 \\ 5 & 18 & 18 & 16 & 19 & 20 \end{bmatrix}$$

PART –C

		CASE STUDY	BL	CO	Max. Marks
12.	Solve the given transportation problem using Vogel's approximation method.		L4	CO5	10 M

Factories	Destination Centres				Supply
	D1	D2	D3	D4	
F1	3	2	7	6	50
F2	7	5	2	3	60
F3	2	5	4	5	25
Demand	60	40	20	15	