Duration: - 2 ½ Hours   E220A23QM   Marks 75

Note:-
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Use of a simple calculator is allowed.

Q1) (A) Select the right answer from the following Multiple choice questions. (Any 8)   **8 M**

1) Calculate 10% of root of 10000.
     A) 1000   B) 100   C) 10   D) 1 (CO1, R)

2) A and b are partners in the firm in 3:5. They earned profit for the year rs. 500000/- calculate the profit from the ratio.
     A) 187500, 312500   B) 200000, 300000   C) 150000, 350000   D) 170000, 330000 (CO2, R)

3) $3X + 5Y = 30$, IF $X = 0$, THEN $Y =$ _____ .
     A) 3   B) 10   C) 6   D) 4 (CO2, R)

4) which is origin point of following.
     A) o(0,0)   B) o(1,1)   C) o(2,2)   D) o(3,3) (CO3, R)

5) point a(-3,-2) plotted in _____ quardant.
     A) 1st   B) 2nd   C) 3rd   D) 4th (CO2, R)

6) _____ means total income of nation / total population.
     A) PCI   B) GDP   C) NI   D) HDI (CO1, 2, R)

7) Beta of a share is
     (A) Expected return   (B) Slope of the regression line   (C) X intercept   (D) y intercept (CO1, R)

8) A combination of a group of securities is called
     (A) Bunch   (B) Portfolio   (C) Sum   (D) Scheme (CO1, R)

9) If the angles of a triangle are in the ratio 3:8:9, then their respective degree measures are
     (a) $27^0, 72^0, 81^0$ (b) $32^0, 70^0, 78^0$ (c) $24^0, 64^0, 92^0$ (d) $60^0, 60^0, 60^0$ (CO2, R)

10) A set of simultaneous equations can be solved using. (CO3, R)
     (a) Cramer's Rule   (b) Cromton's Rule   (c) Graham's Rule   d) Newton's law

Q1) (B) State whether the following statements are True or False.   **7M**
1) Investment always carries risk. (CO1,R)
2) Sale = Cost + Profit(CO1,R)
3) Ratio is a figure denoted by another figure. (CO2,R)
4) 2 x 3 is a square matrix. (CO2,R)
5) 1 0 0 1 is identity matrices. (CO3,U)
6) (2,3) lies in first quadrant. (CO2,U)
7) Minimize deals with profit. (CO2,R)
8) 4, 10, 25 are continued proportionate ratio.(CO1,U)
9) GDP is only economic indicator. (CO3,U)
10) H_0 denotes Null hypothesis.(CO3,R)

Q2) (A) Maximize $z = 5x+7y$, subject to $2x + 3y < 12$, $x + y < 5$, $x > 0$, $y > 0$. (CO1,A)   8M
Q2) (B) Minimize $z = 50x + 100y$ subject to $x + 6y \leq 30$, $x + y \leq 12$, $x \geq 0$, $y \geq 0$. (CO1,A)   7M

OR

Q2) (C) Find A x B, if $A = \begin{pmatrix} 7 & 6 & 8 \\ 6 & 4 & 3 \\ 5 & 4 & 6 \end{pmatrix}$ $B = \begin{pmatrix} -5 & 3 & 2 \\ 5 & -4 & 3 \\ 3 & 5 & -2 \end{pmatrix}$ (CO1,2,A,R) 8M

Q2) (D) If A = $\begin{pmatrix} 5 & 9 \\ 4 & 5 \end{pmatrix}$ B = $\begin{pmatrix} 6 & 8 \\ 3 & 7 \end{pmatrix}$ find 2A + 3B +I.   (CO1,2,A)   7M

Q3) (A) Solve by Cramer's rule (CO1,A)   8M

4x + 3y +2Z = 150, x +2Y +3z = 125, 6x + 2y + 3z = 175

Q3) (B) Expand A = $\begin{vmatrix} x & y & z \\ y & z & x \\ z & x & y \end{vmatrix}$ (CO2 ,R,U)   7M

OR

Q3) (C) What number should be added to these numbers 1,7,22 so that these numbers can be in continued proportion. (CO3,A)   8M

Q3) (D) Mr. A, Mr. B and Mr. C are partners with Capital 500000, 300000, 200000. They earned a profit of Rs. 400000 in a particular year. Find the share of each partner on the base of capital invested. (CO1 ,A)   7M

Q4) (A) **Find the total risk of a share of company M whose probability distribution of return is given below. Also find the standard deviation of returns.** (CO1, A)   8M

Returns in %	Probability
-15	0.10
-10	0.15
-5	0.20
0	0.20
6	0.15
12	0.10
20	0.10

Q4) (B) Mr. Navin purchase some shares of a company for Rs. 780 each and sold them 3 months later at Rs. 810 each. In the meanwhile, he received a dividend of Rs. 10 per share. Find his return for the 3 months holding period and the annualised return. (CO2,A,U)   7M

OR

Q4) (C) If A = $\begin{pmatrix} 4 & -3 & 2 \\ -5 & 4 & 3 \\ 6 & 2 & -4 \end{pmatrix}$ Find A^2. (CO3,A)   8M

Q4) (D) Monthly income of A and B are in the ratio 7:4 and their expenditures are in the ratio 9:5. Each of them saves Rs. 10000. Find their incomes. (CO3,A)   7M

Q5) Write Short Notes (Any 3)   15M

1) Sampling (CO1, U)
2) What is ratio and types (CO2,R)
3) Types of matrices(CO3,R)
4) Economic Indicators(CO1,R)
5) Cramer's rule (CO2,3,U,R)

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