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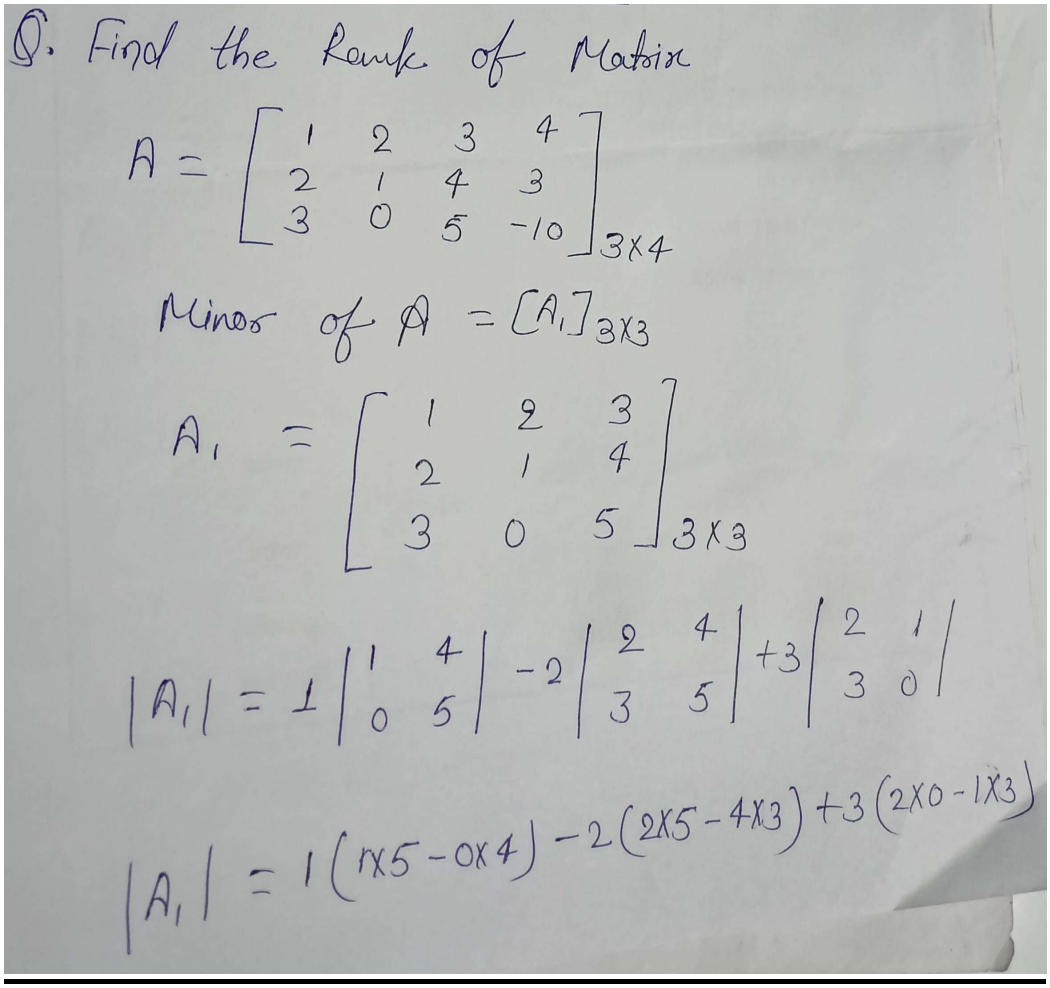
Class: B.A. Economics (Part-3rd)
Paper: 07
Topic: Rank of Matrix



$|A_1| = 1(5-0) - 2(10-12) + 3(0-3)$

$|A_1| = 1\times5 - 2\times-2 + 3\times-3$

$|A_1| = 5 + 4 - 9$

$|A_1| = 0$

$$A_2 = \begin{bmatrix} 1 & 2 & 4 \\ 2 & 1 & 3 \\ 3 & 0 & -10 \end{bmatrix}_{3\times3}$$

$$|A_2| = 1\begin{vmatrix} 1 & 3 \\ 0 & -10 \end{vmatrix} - 2\begin{vmatrix} 2 & 3 \\ 3 & -10 \end{vmatrix} + 4\begin{vmatrix} 2 & 1 \\ 3 & 0 \end{vmatrix}$$

$|A_2| = 1(-10-0) - 2(-20-9) + 4(0-3)$

$|A_2| = 1\times-10 - 2\times-29 + 4\times-3$

$|A_2| = -10 + 58 - 12$

$|A_2| = -22 + 58 = 36$

$|A_2| \neq 0$, so Rank of matrix is 3

Q. $\begin{bmatrix} 8 & 1 & 3 & 6 \\ 0 & 3 & 2 & 2 \\ -8 & -1 & -3 & 4 \end{bmatrix}_{3\times4}$ find Rank of Matrix