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Question no 1:

$$\begin{bmatrix} 1 & ID3 & 3 & 0 & 5 \\ 0 & 1 & -ID_{lost} & 0 & 7 \\ 0 & 0 & 1 & 0 & -6 \\ 0 & 0 & 0 & 1 & ID3 \end{bmatrix}$$

Sol:-

let suppose

$$ID = 12345$$

$$ID3 = 3$$

$$ID_{lost} = 5$$

Inverse of  $ID_{lost}$  is = -5  
putting values

$$\begin{bmatrix} 1 & 3 & 3 & 0 & 5 \\ 0 & 1 & -5 & 0 & 7 \\ 0 & 0 & 1 & 0 & -6 \\ 0 & 0 & 0 & 1 & 3 \end{bmatrix}$$

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(2)

$$\sim \left[ \begin{array}{ccccc|l} 1 & 5 & 0 & 0 & 23 & R_1 - 3R_3 \\ 0 & 1 & 0 & 0 & -23 & \\ 0 & 0 & 1 & 0 & -6 & R_2 + 5R_3 \\ 0 & 0 & 0 & 1 & 3 & \end{array} \right]$$

$$\sim \left[ \begin{array}{ccccc|l} 1 & 0 & 0 & 0 & 92 & R_1 - 3R_2 \\ 0 & 1 & 0 & 0 & -23 & \\ 0 & 0 & 1 & 0 & -6 & \\ 0 & 0 & 0 & 1 & 3 & \end{array} \right]$$

$$x_1 = 92$$

$$x_2 = -23$$

$$x_3 = -6$$

$$x_4 = 3$$



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- (a) (i)  $R_3 - 2R_2$  (row operation)  
(ii)  $R_3 + 2R_2$  (row operation)

- (b) (a) echelon form  
(b) Reduced echelon form  
(c) echelon form  
(d) echelon form

Q<sup>3</sup> (a) practical use.

To solve linear simultaneous equations (by Gauss elimination method).

(b) 
$$\begin{bmatrix} 1 & 2 & 8 \\ 2 & 8 & -1 \\ -3 & 0 & 0 \\ 1 & -4 & 15 \end{bmatrix}$$

$R_2 - 2R_1$   
 $R_3 + 3R_1$   
 $R_4 - R_1$



$$Q^2: \textcircled{a} \rightsquigarrow R_3 - 2R_2,$$

$$\textcircled{b} \quad R_3 + 2R_2.$$

