MATRIC NO=18/SCI01/038

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 1 2 0 1 0 0 0 0 1

A= 3 6 8 B= 1 1 3 C= 1 1 1

 4 7 1 2 1 2 1 1 3

1) 1 2 0

 A = 3 6 8

 4 7 1

Tx = Ax

 1 2 0 a

 Ax= 3 6 8 b

 4 7 1 c

 Ax = a+2b

 a+3b+c

 a+5b+2c

T:R3 R3

2) (B+C)T = 1 2 3

 0 2 2

 1 4 5

 (B+C)T = 1(10-8)-2(0-2)+3(0-2)

 = 2 + 4 -6 = 0,since the determinant is = 0,hence the rank=3

OR

Since the third row is a linear combination of the first and second row, hence the rank = 2

3)

i) A = 1(6-5)-2(2-1)+0(5-3)

 = 1-2+0

 = -1 ≠ 0,hence the matrix is non-singular

ii) B = 1(2-3)-0(2-6)+0(1-2)

 = -1-0+0

 = -1 ≠ 0,hence the matrix is non-singular

iii) C = 0(3-1)-0(3-1)+1(1-1)

 = 0, hence the matrix is singular