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**18/SCI01/025**

**QUESTION 1**

A singular matrix is a matrix whose determinant is equal to zero, while a non-singular matrix is a matrix whose determinant is not equal to zero.

3        9         2

1        5         6

2        7         4

**QUESTION 2**

i. |X|=

|X|= 3(20 - 42) – 9(4 - 12) + 2(7 - 10)

|X|= -66 + 72 – 6 = -0

|X| EQUAL TO 0, Therefore, Matrix X is a Singular matrix

0        5         0

-3     - 7        -1

2        1         9

ii. |Y|=

|Y|= 0(171 + 1) – 5(-27 + 2) + 0(-3 + 14)

|Y|= 0 + 125 – 0 = 125

|Y|NOT EQUAL TO  0, Therefore, Matrix Y is a Non-Singular matrix

1        7         8

1         0        5

11       6      12

iii. |C|=

|C|= 1(0 - 30) – 7(12 - 55) + 8(6 - 0)

|C|= -30 + 301 + 48 = 319

|C|NOT EQUAL TO 0, Therefore, Matrix **C** is a Non-Singular matrix

iiii.

0       25         0

-15    -35     -5

10       5      45

|P|=

|P|= 0(-1575 + 25) – 25(-675 + 50) + 0(-75 + 350)

|P|= -0 + 15625 – 0 = 15625

|P|NOT EQUAL TO 0, Therefore, Matrix 5Y is a Non-Singular matrix

1        2         8

4         7        6

9         5        3

v. |A|=

|A|= 1(21 - 30) – 2(12 - 54) + 8(20 - 63)

|A|= -9 + 84 – 344 = - 269

|A| is  not equal to zero Therefore, Matrix A is a Non-Singular matrix