CHUKWUJINDU IFEANYI MIRACLE 18/SCIO1/024

MAT 204 ASSIGNMENT

LetA= 3 1 2 B= 1 0 2 102 201 211 113

C=213 224 011

1.

Linear transformation of A if vector X = (a, b, c ) solution

A=312,X=a 102 b 211 c

T(x) =a 3 +b 1 +c 2 102 211

T(x)=3a+b +2c a 0 2c

2a b c T(x)= 3a + b + 2c

a + 0 + 2c 2a + b + c

Hence the transformation of

a b c

gives

3a + b + 2c a + 0 + 2c 2a + b + c

2. Find the rank of (B+C) transpose

B+C= 1 0 2 + 2 1 3

201 224 113 011

B+C= 315 425 124

(B+C)T= 3 4 1 122

554 To find rank

|(B+C)T|=3 22-4 12 +1 12 545455

= 3(8 - 10) – 4(4 - 10) + 1(5 - 10) =3(-2)– 4(-6)+1(5–10)

= -6 + 24 - 6

= 12

12≠0

Hence the Rank of (B+C)T is 3.

3. Check whether A, B, and C are singular or non-singular matrix.

For A;

|A|= 312

102

211

|A| = 3 0 2 - 1 1 2 + 2 1 0

112121

)0 – 1(2 + )4 – 1(1 – )2 – 0(3 = )1(2 + )3-(1- )2-(3=

1- = 2 + 3 + 6- = 0≠1-

.It is a non-singular matrices ؞

For B;

|B|= 1 0 2

201 113

|B|=1 01-021+220 131311

|B| = 1(0 – 1) – 0 + 2(2 – 0) )2(2 + 0 – )1-(1=

4 + 0 – 1- =

3= 0≠3

.It is a non-singular matrices؞

For C;

|C|= 2 1 3

224 011

|C|=2 24-124+322 110101

|C| = 2(2 – 4) – 1(2 – 0) + 3(2 – 0) )2(3 + )2(1 – )2-(2=

6 + 2 – 4- =

0=

.It is a singular matrix؞