**NAME: OKEREKE EBUBECHUKWU CHUKWUEMIKA**

**COURSE CODE: MAT 204**

**DEPT/LEVEL: COMPUTER SCIENCE 200 LEVEL**

**MATRIC NUMBER: 18/SCI01/066**

**QUESTION 1**

i. |X|= 1 2 8

 4 7 6

 9 5 3

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

|X|= -9 + 84 – 344 = - 269

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

ii. |Y|= 0 5 0

 -3 -7 -1

 2 1 9

 |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

iii. RANK OF Y

|Y|= 0 5 0

 -3 -7 -1

 2 1 9

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

|Y|= 0 + 125 – 0 = 125 IT IS NOT EQUAL TO 0; HENCE THE RANK OF Y IS 3

iv. |X+Y|= 1 7 8

 1 0 5

 11 6 12

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

|X+Y|= -30 + 301 + 48 = 319

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

v. |5Y|= 0 25 0

 -15 -35 -5

 10 5 45

 |5Y|= 0(-1575 + 25) – 25(-675 + 50) + 0(-75 + 350)

|5Y|= -0 + 15625 – 0 = 15625

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

**QUESTION 2**

T(m)= 1

 T(h)= 1

 T(i)= 3

T(k)= 5

 T(o)= 9

T(r)= 9