**JOSHUA ETUK 19/SCI01/095**

**RANK OF A**

|A|=  **1 -3 6**

 **4 0 2**

 **8 5 1**

**|A|= 1(0 - 10) +3 (4 - 16) + 6(20 - 0)**

**|A|= -10 - 36 + 120 = 74 IT IS NOT EQUAL TO 0; HENCE THE RANK OF A IS 3**

1. **RANK OF B TRANSPOSE**

      |B|=

  **1 1 0**

 **1 -2 3**

 **2 1 -4**

**|B|= 1(8 + 3) – 1(-4 - 6) + 0(1 + 4)**

**|B|= 5 + 10 + 0 = 15 IT IS NOT EQUAL TO 0; HENCE THE RANK OF B TRANSPOSE IS 3**

1. **RANK OF (A + C) TRANSPOSE**

|A+C|=  **1 10 9**

 **1 -7 2**

 **9 3 3**

**|A+C|T =**

**|A+C|= 1(-21 - 6) – 10(3 - 18) + 9(3 + 63)**

**|A+C|= -27 + 150 + 594 = 717**

**IT IS NOT EQUAL TO 0; HENCE THE RANK OF (A + C) TRANSPOSE IS 3**

1. **RANK OF (B + C)**

  **1 5 5**

 **7 -9 2**

 **1 0 -2**

**|B+C|= 1(18 - 0) -5(-14 -2) + 5(0 + 9)**

**|B+C|= 18 + 80 + 45 = 143**

**IT IS NOT EQUAL TO 0; HENCE THE RANK OF (B + C) IS 3**

1. **RANK OF (A+B+C)**

|A+B+C|= **2 2 11**

 **11 -9 4**

 **9 5 -1**

**| A+B+C |= 2(9 - 20) – 2(-11 - 36) + 11(55 + 81)**

**| A+B+C |= -22 + 94 + 1496 = 1568**

**IT IS NOT EQUAL TO 0; HENCE THE RANK OF (A+B + C) IS 3**