A=2i-j B=3i+j-11k C=4i+4j-5k

1. -3A+7B-8C

-3A=-3(2i-j) =6i+3j

7B=7(3i+j-11k) = 21i+7j-77k

-3A+7B=15i+10j-77k

-3A+7B-8C=-17i-22j-37k

II)

K=2A+4AB-C

2A=2(2i-j) = 4i-2j

4B=4(3i+j-11k = (12i+4j-44k)

2A+4B = 16i+2j-44k

2A+4B-C = 12i-2j-39k

|k|=== 40.85

The direction cosines of k are

Cos α = 0.2938, Cos β = -0.0490, Cos ϒ = -0.9547

III)

A×B×C

=i (11-0)-j (-22-0) +k (2+3) = 11j+22j+5k = 11i+22j+5k

=I (-110-20) –j (-55-20) +k (44-88) = -130i +75j -44k

IV)

3A= 3(2i-j) = -6i-3j

2B = 2(3i + j – 11k) = 6i + 2j – 22k

=i (33-0) –j (-66-0) +k (6+9) = 33i + 66j + 15k

=i (22-0) –j (-44-0) +k (4+6) = 22i +44j +10k

= [(33×22) + (66×44) + (15×10)] = 3780

V)

A – 2B – C

A – 2B = -4i – 3j + 22k

A – 2B – C = 8i – 7j + 27k

2) I) Two vectors A and B are said to be perpendicular if their scalar product is equal to 0.

II) Three vectors A, B and C are said to be coplanar if their triple scalar product [A.(B×C)] is equal to 0.