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DEPARTMENT: MECHATRONICS

MATRIC NO: 19/ENG05/042

COURSE TITLE: GENERAL MATHEMATICS II

COURSE CODE: MATS 102

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ASSIGNMENT

1 . finding the velocity at

Solution

Let P(xyz) be any point on the given curve and r = be the position vector of P relative to 0 as origin. Then

Velocity Vector v =

=

Velocity =

2 . If A = I + 2j - 4k, B = 2i - 3j + k, C = 4j - 3k, Find Ax(BXC)

Solution

BxC: = (-3)(-3) – (4)(1) = 5 = -{(2)(-3) – (1 )(0)} = 6

= (2)(4) – (-3)(0) = 8

S0 Ax(BxC) = {5,6,8} x {1,2,-4}

Ax(BxC) = = (2)(8) – (6)(-4) = 40

= -{(1)(8) – (4)(5)} = -28

= (1)(6) – (2((5) = -4

Therefore Ax(BxC) =

3 . Given R = 4 sin 3t i + j + , find the integral of R with respect to t

Solution

= dt

4 . If A = 7i + 2j - k, B = 2i + j + 4k, C = I + j + k, find (A+C) . (B-A)

Solution

A + C = = ( 8,3,0)

B – A = = (-5, -1, 5)

(A + C) . (B – A) =

= -40 – 3 + 0

= -43

5 . Find a unit vector tangent to the space curve X = t, Y= , Z= at the point where t=1.

Solution

T =

Where t = 1

= 3.74

Hence, T =