

C.U.SHAH UNIVERSITY

Summer Examination-2016

Subject Name: Electromagnetics

Subject Code: 4TE05EMS1

Branch: B.Tech(EC)

Semester: 5

Date:25/04/2016

Time: 02:30 To 05:30

Marks :70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

Q-1 **Attempt the following questions:** **(14)**

- a) Define Scalar and Vector.
- b) Define Unit Vector.
- c) State different types of co-ordinate systems.
- d) Define Del Operator.
- e) Write Maxwell's First equation.
- f) State Gauss law.
- g) Define the term Potential difference.
- h) State Faraday's law.
- i) What is skin effect?
- j) Explain Wave Polarization
- k) State Poyting theorem.
- l) What is retarded potential?
- m) Explain Mutual inductance.
- n) Explain wave power

Attempt any four questions from Q-2 to Q-8

Q-2 **Attempt all questions** **(14)**

- (a) Explain Divergence theorem.
- (b) Three vertices of a triangle are located at A(6,-1,2),B(-2,3,-4) and C(-3,1,5)
Find: (a) R_{AB} (b) R_{AC} (c) The angle θ_{BAC} at a vertex A

Q-3 **Attempt all questions** **(14)**

- (a) Given Point P ($r=0.8, \theta = 30, \Phi=45$) and $E = \frac{\cos \Phi a_r + a_\Phi \frac{\sin \Phi}{\sin \theta}}{r^2}$
Find(a) E at P (b) find magnitude of E at P (c) Find a unit vector in the direction of E at P.
- (b) Explain Coulomb's law with necessary diagram and equations.



