Printed Pages: 02 **Subject Code:EC402MTU**

Paper Id: **131228** **Roll No:** | | | | | | | | | | |

BTECH
(SEM IV) THEORY EXAMINATION 2018-19
ELECTROMAGNETIC FIELD THEROY

Time: 3 Hours ***Total Marks:100***

Notes: *Assume any Missing Data.*

SECTION-A

Q1. Attempt all questions in brief (2x10=20)

(a) Difference between scalar and vector. Give two example of each?

(b) Write laplace equation in cartesian, cylindrical, spherical system?

(c) Define gradient?

(d) What is Faraday's law and write the equation of Faraday law in point and integral form?

(e) What is uniqueness theorem?

(f) Define curl?

(g) Write down the word statement of stroke theorem?

(h) Define electric flux density?

(i) Define intrinsic impedance and phase velocity?

(j) Explain elliptical and circular polarization of wave?

SECTION-B

Q2 Attempt any three of the following. (3x10=30)

(a) State and prove divergence theorem?

(b) State and explain maxwell's equations in differential and integral form?

(c) Explain the lineintegral , surface integral and volume integral in detail.

(d) Derive Poissons and laplace equations?

(e) Derive the expression for input impedance Z_{in} of transmission line?

SECTION-C

Q3 Attempt any one parts of the following: (10*1=10)

(a) Explain the concept of scalar and vector field in detail.

(b) Convert the Cartesian coordinate system into cylindrical coordinate system?

Q4 Attempt any one parts of the following: (10*1=10)

(a) Find the potential function and electric field intensity for the region between two concentric right circular cylinder where V=Vo at r = a and V = 0 at r = b (b>a)?

(b) State and explain Coulomb's law and its importance?

Q5 Attempt any one parts of the following: (10*1=10)

(a) State and explain Ampere circuital law? Discuss any one application of Ampere circuital law?

(b) State Faradays law & derive the equation for displacement current?

Q6 Attempt any one parts of the following: (10*1=10)

(a) Find the value of α, ß, for good conductors. Show that angle of characteristic impedance is always 45º for good conductors?

(b) Derive the wave equation for conducting media?

Q7 Attempt any one parts of the following: (10*1=10)

(a) Describe the process of impedance matching by single stub tuner.

(b) Derive the equation of transmission line?