Reg. No. :

Question Paper Code: 34043

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Fourth Semester

Electronics and Communication Engineering

01UEC403 – ELECTROMAGNETIC FIELDS

(Regulation 2013)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. State Divergence theorem.

2. Define curl and gradient of a vector.

3. Define Biot –Savarts Law in vector form.

4. Define mutual inductance.

5. Define polarization.

6. Define Couloumb's law.

7. State Lenz's law.

8. Define electric dipole and dipole moment.

9. What is skin depth?

10. What are the standing waves?

PART - B (5 x 16 = 80 Marks)

11. (a) Using Gauss's law, calculate the E due to infinitely large uniformly charged plate.

(16)

Or

(b) State and prove divergence theorem. (16)

12. (a) Derive the magnetic field intensity due to a finite and infinite wire carrying the current I. (16)

Or

(b) Derive a general expression for the magnetic flux density B at any point along the axis of a long solenoid. Sketch the variation of B from point to point along the axis. (16)

13. (a) State and derive electric boundary conditions for a dielectric to dielectric medium and a conductor to dielectric medium. (16)

Or

(b) State and derive the magnetostatic boundary conditions at the interface between the conductor and free space. (16)

14. (a) State and explain pointing theorem. (16)

Or

(b) Derive and explain Maxwell's equations both in integral and point forms. (16)

15. (a) Derive the wave equations for uniform plane waves. (16)

Or

(b) Discuss about normal incidence and oblique incidence with respect to plane waves. (16)

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