

**B.Tech. – VIEP – ELECTRICAL ENGINEERING
(BTELVI)**

Term-End Examination

December, 2014

00425

BIEE-005 : ELECTROMAGNETIC THEORY

Time : 3 hours

Maximum Marks : 70

Note : Attempt any **seven** questions from the following.
Assume the missing data, if any.

1. State and explain Coulomb's Law with the help of a suitable example. 10
2. A charge $Q_1 = -10$ nC is at the origin in free space. If the x-component of electric field (\vec{E}) is to be zero at the point (3, 1, 1), what charge Q_t should be kept at the point (2, 0, 0)? 10
3. Derive the expression for the capacitance between two parallel wires system. 10
4. State and prove boundary conditions for electric field with the help of a neat diagram. 10
5. Explain the Ampere's circuit law and also derive different forms of Ampere's law. 10

6. Derive the mathematical expression for energy stored in magnetic field. 10
 7. Derive the wave equation for the lossless medium. 10
 8. What is polarisation ? Explain the various kinds of polarisation. 10
 9. What are the primary constants and secondary constants of a transmission line ? Explain in detail. 10
 10. Write short notes on any **two** of the following : $5 \times 2 = 10$
 - (a) Gauss's theorem
 - (b) Biot-Savart Law
 - (c) Smith's chart
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