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BIEE-009

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

Term-End Examination

December, 2015

BIEE-009 : APPLIED ELECTROMAGNETICS

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any* ***seven*** *questions. All questions carry equal marks. Assume missing data, if any.*

1. Define electric scalar potential. Derive a mathematical expression for electric scalar potential for a charge q. *10*

2. Derive the expression for electric scalar potential due to an electric dipole (+ Q and – Q) at point P. Let 'd' be the distance between +(ve) and (–)ve charge points and 'r' be the distance between P and centre of the dipole. *10*

3. What is electric field polarization ? Also explain circular polarization in detail. *10*

4. State and prove Poisson's and Laplace's equations. *10*

5. Derive the expression for capacitance between parallel wires. *10*

6. Discuss the Ampere's law. Also obtain inductance of solenoid. *10*

7. Derive the expression for input impedance of a transmission line. *10*

8. Write the Maxwell's equations. Also explain their practical meaning and relate them to previous theories. *10*

9. What do you mean by wave polarization ? Discuss the elliptical polarization in detail. *10*

10. Write short notes on any ***two*** of the following : *2×5=10*

    (a) Faraday's Law

    (b) Poynting's Theorem

    (c) Magnetic Flux