

Roll No.

Total No. of Pages : 2

BT-4/J07

8661

Field and Waves

Paper : ET-210

Time : Three Hours]

[Maximum Marks : 75

Note :- Attempt any FIVE questions.

1. (a) What is the significance of the curl of a vector ?
 (b) What does the divergence of a vector signify ?
 (c) State Stoke's theorem and write its significance. 5×3= 15
2. (a) Derive the Poisson's equations and Laplace's equations. 8
 (b) State and prove Ampere's Law. 7
3. (a) Write a short note on SMITH CHART.
 (b) Derive boundary conditions for time varying field.
 (c) What is difference between standing wave and a propagating wave ? 5×3= 15
4. (a) Explain Snell's Laws of reflection and refraction. 7½
 (b) What is a surface wave ? What is the condition under which a uniform plane wave after passing through a dielectric boundary becomes a surface wave ? 7½
5. (a) Discuss on parallel plane guide.
 (b) Express the voltage and current waves in a transmission line in terms of the forward and backward travelling waves.
 (c) Compare TE, TM and TEM waves. 5×3= 15
6. (a) Calculate the cutoff frequency for the dominant mode in a rectangular waveguide.
 (b) What is cavity resonator ? What is the resonant frequency in a cavity resonator ? 7½+7½

- 7. (a) Write a short note on high frequency antennas.
 - (b) Define gain, bandwidth, polarization of antenna. 7½+7½
8. Write short notes on any **three** :
- (a) Antenna coupling
 - (b) Microstrip line
 - (c) Wave propagation in conducting media
 - (d) Microwave antenna. 5×3= 15

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