Radiation & Microwave Techniques
(New) (1210)

P. Pages : 2

Time : Three Hours   **Max. Marks : 100**

Instructions to Candidates :
1. Do not write anything on question paper except Seat No.
2. Answer sheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Answer **any two** questions from each unit & assuming suitable data if necessary.
5. Use of non programmable calculator is allowed.
6. Figure to the right indicate full marks.

UNIT - I

1. a) Derive & explain Transmission Line equation.   **10**

   b) Explain term reflection coefficient & Transmission coefficients & their relation with each other.   **10**

   c) For a load impedance $ZL = 60-J80\Omega$, design two single stub (short circuit) shunt tuning networks, to match this load to a 50Ω lines using smith chart.   **10**

UNIT – II

2. a) What are directional couplers ? Draw & explain Directional couplers with characteristics.   **10**

   b) Prove that the cut-off wave length of a rectangular wave guide is   **10**

$$\lambda cmn = \left(\frac{2ab}{\sqrt{(m^2b^2 + n^2a^2)}} \right)$$

   c) Compare between transmission line & wave guide.   **10**

UNIT – III

3. a) Explain construction, working & applications of Travelling wave Tube with neat diagram. **10**

b) Write short note on : **10**
   i) IMPATT Diode
   ii) TRAPATT Diode.

c) Draw & explain Reflex Klystron with it's performance characteristics. **10**

UNIT – IV

4. a) Explain methods for measurement of VSWR. **10**

b) Explain slotted antenna. **10**

c) Explain parabolic reflector with all types of feeding methods. **10**

UNIT – V

5. a) Draw block diagram of MTI Radar & explain. **10**

b) Derive Radar Range equation. **10**

c) What is Radio meter system, explain with neat diagram. **10**

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