

Seat
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मध - 069

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. Answersheet 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** sub questions from each unit.
5. Assume suitable data if necessary.
6. Use of non programmable calculator is allowed.
7. Figures to right indicate full marks.
8. Draw figures / sketches wherever required.

UNIT - I

1. a) What is smith chart ? Explain it. 10
- b) Explain the term reflection coefficient and transmission coefficient. How they are related to each other. 10
- c) How matching is provided by quarter wave transformer explain in detail. 10

UNIT - II

2. a) Write a short notes on : 10
 - i) Circulator.
 - ii) Directional coupler.
- b) Explain the parameters while selecting the microwave components. 10
- c) A hollow rectangular waveguide has a dimensions $a = 1.5$ cm and $b = 1$ cm. Calculate the amount of attenuation if the frequency of the signal is 6 GHz. 10

UNIT - III

3. a) Explain the limitations of conventional tube. 10
- b) What are the avalanche transit time devices ? Explain the construction and operation of IMPATT diode. 10
- c) Explain the reflex klystron in terms of efficientness. 10

UNIT - IV

4. a) Explain LENS Antenna in detail. 10
- b) Explain Horn antenna. 10
- c) Explain various types of frequency measurements with block diagram. 10

UNIT - V

5. a) Explain Dicke radiometer with block diagram. 10
- b) Explain pulse RADAR. 10
- c) A military radar operates at 5 GHz with 2.5 M Watt power o/p. If the antenna diameter is 5m. The receiver bandwidth is 1.6 MHz and has 12 dB noise figure what is the maximum detection range for 1m^2 target. 10
