Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

EC-704 (GS)

B.E. VII Semester

Examination, December 2017

Grading System (GS)

Microwave Engineering

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.
ii) All question carry equal marks.

1. a) What are waveguides? Explain the propagation of electromagnetic wave in a rectangular waveguide.
   b) What is dominant mode and degenerate mode? What are the techniques for imitations of modes in a rectangular waveguide.

2. a) How do TEM and TE wave differ? Explain strip line and microstrip lines.
   b) What are ferrites? Why are these useful in microwaves? Mention their properties with the aid of diagram explain the operation of Faraday rotation ferrite isolator.

3. a) Explain the principle of operation of E-plane Tee. Also write down its properties.
   b) Explain the working of directional coupler. Derive its scattering matrix.

4. a) Write a detailed note on :
   i) PIN Diodes
   ii) Parametric Amplifier
   b) Explain various modes of Gunn oscillator operation. What do you mean by Gunn effect?

5. a) Explain the working of TWT. Why does the TWT need a slow wave structure.
   b) Explain the principle of working of reflex Klystron Oscillator.

6. a) What do you mean by Rising sun cavity and strapping? Explain.
   b) Draw the block diagram of network analyzer and explain the function of every block.

7. a) Define and explain VSWR. Explain the double minimum method of measuring VSWR.
   b) Explain how can the power of a microwave generator be measured using Bolometer.

8. Write short note on (any three) :
   a) TRAPATT
   b) LASER
   c) Hybrid T
   d) Microwave Bench
   e) Group Velocity

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