Code: 9A04606

AS

B.Tech IV Year II Semester (R09) Supplementary Examinations April 2018

MICROWAVE ENGINEERING

(Electronics & Communication Engineering)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

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1 (a) Discuss how the microwave spectrum is categorized into different bands.
(b) What is the need of microwave frequency? Explain different applications of microwaves.

2 (a) Draw the microstrip line schematic diagram and explain how signal propagates in it.
(b) Explain the methods of exciting a resonator cavity.

3 Explain the construction and working of precision variable attenuator. Discuss its frequency response and reflection losses.

4 A three port circulator has an insertion loss of 1 dB, an isolation of 20 dB and VSWR of 1.2. Find the output power at port 2 and 3 for an input power of 100 mW at port 1.

5 (a) Why two-cavity klystron is widely used in microwave amplifiers?
(b) Derive an expression for power output of a 2-cavity klystron amplifier specify maximum valve of efficiency that can be obtained.

6 With neat diagrams and relevant equations, explain about cylindrical and coaxial magnetron.

7 (a) What are the various frequency modes in which Gunn effect oscillator can be made to oscillate? Explain each mode in detail.
(b) Draw the current waveform of an n-type GaAs and discuss.

8 (a) Write short notes on the measurement of noise factor.
(b) Distinguish between slotted-line technique and wave meter techniques of frequency measurement.

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