

C 44421

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Name.....

Reg. No.....

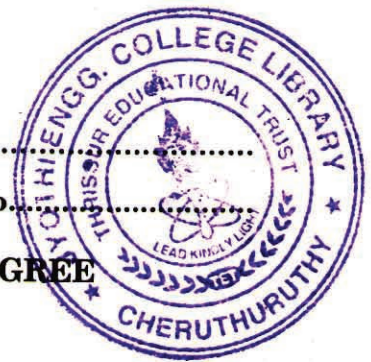
**SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2013**

EC 09 702—MICROWAVE ENGINEERING

(2009 Scheme – Supplementary)

Time : Three Hours

Maximum : 70 Marks



Part A

Answer all questions.

- I. (a) What is the frequency range of Microwaves ?
- (b) Distinguish between Reciprocal and Non-reciprocal networks.
- (c) What are the limitations of conventional tubes in microwave generation ?
- (d) What are varactors ?
- (e) Distinguish between Monolithic and Hybrid MICs.

(5 × 2 = 10 marks)

Part B

Answer any four questions.

- II. (a) Explain the features and applications of Microwaves.
- (b) Draw the structure of a 3 port network and explain its operation and application.
- (c) Explain the operation of a backward wave oscillator.
- (d) Write a note on Millimetre wave tubes.
- (e) Explain the high frequency limitations of transistors.
- (f) Draw the structure of a slotline and explain its electric and magnetic field distributions.

(4 × 5 = 20 marks)

Part C

Answer all questions.

- III. (a) Discuss in detail about scattering matrix and its significance with a suitable example.

Or

- (b) Explain the working and applications of :
 - (i) Circulators.
 - (ii) Isolators.

Turn over

IV. (a) Discuss in detail about the structure and working principle of reflex klystron oscillator.

Or

(b) Explain the working of :

- (i) Magnetron.
- (ii) Travelling wave tube.

V. (a) (i) Explain Manley Rowe relations.

(ii) Explain the principle of working of a Gunn Diode Oscillator.

Or

(b) Explain the operation of :

- (i) IMPATT and TRAPATT diodes.
- (ii) PIN diode and Schottky barrier diode.

VI. (a) Discuss in detail about

(i) Microstrip ; and (ii) Stripline.

Or

(b) Explain :

- (i) VSWR measurement.
- (ii) Microwave Power measurement.

(4 × 10 = 40 marks)