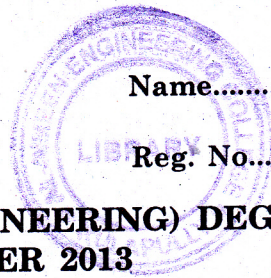


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Name.....

Reg. No.....

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

Electronics and Communication Engineering
EC/PTEC 09 702—MICROWAVE ENGINEERING
(2009 Scheme)

Time : Three Hours

Maximum : 70 Marks

**PART A (5X2 =10 MARKS)
ANSWER ALL QUESTIONS**

1. State the difference between reciprocal and non reciprocal networks.
2. What is a Millimeter wave tube?
3. State Gunn Effect.
4. State Avalanche Effect.
5. State the difference between hybrid and monolithic MICs.

**PART B (4X5 =20 MARKS)
ANSWER ANY FOUR QUESTIONS**

6. With neat sketch, explain the operation of a directional coupler.
8. Explain the operation of Isolator and Circulator.
9. Explain the generation of microwaves by conventional tubes and their limitations.
10. What is a backward wave oscillator? Explain.
11. Explain the operation of a Tunnel Diode.
12. Write a note on VSWR measurement.

**PART C (4X10=40 MARKS)
ANSWER ALL QUESTIONS**

13. (a) Briefly discuss the characteristic features and applications of microwaves.
(or)
(b) What is an S matrix? Explain its properties. Sketch the section of a uniform transmission line and write the S matrix.
14. (a) Discuss in detail about Klystron amplifiers.
(or)
(b) Explain the operation of (i) Magnetron (ii) Traveling Wave Tube.
15. (a) State and Explain Manley Rowe relations.
(or)
(b) Explain in detail about (i) IMPATT and TRAPATT diodes (ii) PIN diode.
16. (a) Explain the Stripline and Slotline with neat sketch. Explain their electric and magnetic field distributions
(or)
(b) Discuss in detail about the power and frequency measurement.