

2301

B.E. 6th Semester (ECE) Examination,

May-2013

MICROWAVE AND RADAR ENGG.

Paper-EE-302-E

Time allowed : 3 hours] [Maximum marks : 100

Note : Attempt any five questions.

1. (a) Explain clearly the differences between TE and TM modes in rectangular waveguides with the help of suitable field patterns. 10
- (b) Discuss and explain the excitation of modes in wave guides. 10
2. (a) Discuss and explain the working of directional couplers and H-plane Tee using the simple diagrams. 10
- (b) Explain the principle of operation of a reflex Klystron with the necessary diagram. 10
3. (a) Explain how a slotted line can be used to measure any unknown impedance at microwave frequencies. 10
- (b) Describe a typical method for the measurement of microwave power in detail. 10

4. (a) Discuss and explain the operation of varactor diode and tunnel diode and give their characteristics. 10
- (b) Discuss and explain in detail the construction, operation and application of a magnetron. 10
5. Explain and discuss in details about microwave solid state devices and also differentials between Gunn diode and IMPATT. 20
6. Explain the system design and operation of a Radar system and derive the radar equation assuming suitable parameters. 20
7. (a) Explain the system set up for measurement of SWR and frequency with the help of diagram. 10
- (b) Discuss and explain the principle of MASER operation and state its applications. 10
8. Write short notes on any *two* of the following :
- (a) Parametric Amplifier
- (b) Planar transmission lines $10 \times 2 = 20$