Roll No. .....

24326

B. Tech. (ECE) 6th Sem.

Examination – May, 2015

MICROWAVE AND RADAR ENGINEERING

Paper : EE-302-F

Time : Three Hours] *[Maximum Marks : 100*

Before answering the question, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt any *five* questions selecting at least *one* from each Unit. Question No. 1 is ***compulsory***. All Question carry equal marks.

1. (a) How are wave guides different from normal two wire transmision lines Explain. 5

(b) What do you mean by Scattering matrix ? Explain its properties. 5

(c) Discuss the Tunnel Diode. 5

(d) Discuss the Radar frequencies briefly. 5

UNIT – I

2. Derive the wave equation for a T. M. wave and obtain all the filled component in a rectangular wave guide. 20

3. Calculate the breakdown power of an airfielded rectangular wave guide of size 2.3cm×1.0cm for the dominant mode at 9.375 GHz. 20

UNIT – II

4. (a) Explain the functioning of flap and vane attenuators. 10

(b) Explain the function of a rat-race function. 10

5. Determine the [S] of a 3 port circulator given insertion loss of 0.5 dB, isolation of 20 dB and VSWR of 2. 20

UNIT – III

6. What are avalanche transit time devices ? Explain the operation construction and applications of the following devices : 20

(i) IMPATT

(ii) TRAPATT

7. Define negative differential sensitivity. Explain the J. E Characteristics of a Gunn Diode. 20

UNIT – IV

8. Explain the Block Diagram and operation of a Radar. 20

9. Write short note on : 20

(i) Blend speed

(ii) Monopulse tracking

(iii) PRF

(iv) Duplexer