

**Total No. of Pages : 02**

**Total No. of Questions : 09**

**B.Tech.(ETE)/(ECE) (2011 Onwards) (Sem.-6)**  
**MICROWAVE AND RADAR ENGINEERING**  
**Subject Code : BTEC-601**  
**Paper ID : [A2315]**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTION TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.**

## SECTION-A

**Q1 Answer briefly :**

- a) Define the term VSWR.
- b) What is transit angle effect?
- c) Write the full forms of IMPATT and MASER diodes.
- d) Draw V-I characteristic of GUNN diode.
- e) Compare two cavity klystron with Traveling wave tube.
- f) Write the two equations for maximum radar range.
- g) Define frequency pushing and pulling in magnetron.
- h) Define PRF.
- i) Compare the pulsed radar and CW radar.
- j) What is the range of microwave frequencies?

### SECTION-B

- Q2 Explain the pulsed RADAR system with the help of block diagram.
- Q3 What is Impedance matching? Explain single stub matching and double stub matching.
- Q4 Explain the negative resistance principle for TRAPATT diode.
- Q5 Derive the relationship between SWR and reflection co-efficient.
- Q6 Describe the operation of two hole directional coupler.

### SECTION-C

- Q7 a) Discuss difference between MTI and Doppler radar.
- b) Describe high power measurement method.
- Q8 With a neat sketch, explain the operation of magic tee. Also obtain the S matrix representation of the magic tee.
- Q9 Write a short note on :
- a) Scanning and Tracking Techniques.
- b) Phase shifter.