



Regulation R20

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

Subject code: 3P7DA

B.Tech VII Semester Supplementary Examinations, April 2024

Microwave Engineering

(ECE)

Maximum Marks: 70

Date: 29.04.2024 Duration: 3 Hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 10 questions. Answer any 5 questions which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10X2M=20 Marks)

- 1 Define TE Mode in Rectangular Waveguides.
- 2 Define Microstrip Line
- 3 Define Attenuator.
- 4 Define an Iris .
- 5 List the names of Microwave tubes.
- 6 Define transit time.
- 7 What are cross-field devices.
- 8 What is LSA mode.
- 9 Define S-Matrix.
- 10 Define Thermistor.

Part-B

Answer All the following questions.

(10MX 5=50Marks)

- 11 Derive all the wave equations for a TM mode and obtain all the field components in a rectangular wave guide. [10M]
OR
- 12 Discuss the Power Transmission and Power losses in a Rectangular Waveguide. [10M]
- 13 What is a microwave phase shifter? Discuss the working of a phase shifter. [10M]
OR
- 14 Explain the working of Magic Tee with a neat diagram. [10M]
- 15 Explain the limitations of conventional tubes at microwave frequency. [10M]
OR
- 16 Explain the operation of Reflex Klystron using Applegate diagram [10M]
- 17 Explain the operation of Magnetron with neat diagram and discuss its performance characteristics. [10M]
OR
- 18 Explain the operation of GUNN diode using 2 -valley theory. [10M]
- 19 Discuss the method for measuring high voltage standing wave ratio. [10M]
OR
- 20 Explain measurement of microwave power using Bolometer method. [10M]