



Regulation 17

Subject code: 1P7DA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY  
(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech IV Year I Semester Supplementary Examinations, July 2022

## MICROWAVE ENGINEERING

(Electronics and Communication Engineering)

Maximum Marks: 70

Duration: 3 Hours

### Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 List the basic advantages of microwave frequencies.
- 2 List the typical applications of microwaves
- 3 Define Q factor of a cavity resonator.
- 4 Define Faraday Rotation .
- 5 List the limitations of conventional tubes at microwaves.
- 6 List the types of Slow wave structures.
- 7 What is PI mode?
- 8 List the devices under Avalanche Transit Time.
- 9 Define S-Matrix.
- 10 State the various methods for measuring attenuation.

### Part-B

Answer all the QUESTIONS

(10MX 5=50Marks)

- 11 Derive all the wave equations for a TM mode and obtain all the field components in a Rectangular Waveguide. [10M]  
OR
- 12 Discuss the power Transmission in a Rectangular Waveguide [10M]
- 13 What is an Attenuator ? Discuss the working of a variable attenuator. [10M]  
OR
- 14 Explain the working of Magic Tee with a neat diagram. [10M]
- 15 Explain the construction and working of 2- cavity Klystron amplifier using applegate diagram. [10M]  
OR
- 16 Explain the construction and working of TWT. [10M]
- 17 How is bunching achieved in a Cavity Magnetron. Explain with the help of the neat sketch. [10M]  
OR
- 18 Explain the construction of GUNN diode using RWH theory. [10M]
- 19 Derive the S-Matrix of directional coupler . [10M]  
OR
- 20 Draw a neat diagram of microwave test bench and explain about each block along with its features. [10M]