



Regulation 18

Subject code: 2P7DA

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VII Semester Supplementary Examinations, April 2024

MICROWAVE ENGINEERING

(Electronics and Communication Engineering)

Maximum Marks: 70

Date: 23.04.2024 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 List the basic advantages of microwave frequencies.
- 2 Define Microstrip Line
- 3 What is the function of a POST?
- 4 Define an Iris .
- 5 Compare O- type tube and M-type tube .
- 6 Define transit time
- 7 What is PI mode?
- 8 What are the applications of Gunn diode?
- 9 What are the properties of S-Matrix.
- 10 Draw the microwave bench setup.

Part-B

Answer all the questions

(5X10M=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 and Power losses in a Rectangular Waveguide. [10M]
- 13 What is a cavity resonator. Derive an expression for Q factor of a cavity resonator? [10M]

OR

- 14 Explain Faraday Rotation principle. Explain the operation of ferrite Isolator. [10M]
- 15 Explain the limitations of conventional tubes at microwave frequency. [10M]

OR

- 16 What are slow wave structures? Explain how a helical TWT achieves amplification. [10M]
- 17 Explain the operation of Magnetron with neat diagram and discuss its performance characteristics. [10M]

OR

- 18 What is TED? Explain the V-I characteristics of GUNN diode with neat diagram [10M].
- 19 Derive the S-Matrix of H-plane TEE. [10M]

OR

- 20 Derive the S-Matrix of E Plane TEE. [10M]

