

III B. Tech II Semester Supplementary Examinations, February-2022

MICROWAVE ENGINEERING

(Electronics and Communication Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the question in **Part-A**
 3. Answer any **FOUR** Questions from **Part-B**

PART -A**(14 Marks)**

1. a) List out some applications of microwaves. [2M]
- b) List out the different types of losses in microstrip lines. [2M]
- c) Write the performance characteristics of reflex klystron. [2M]
- d) What is the need of slow-wave structure? [3M]
- e) Write short notes on Gyrator. [3M]
- f) What is Gunn Effect? [2M]

PART -B**(56 Marks)**

2. a) Draw the typical microwave system and briefly explain it. [7M]
- b) Write the expressions for cutoff wave number, cutoff frequency, phase constant and phase velocity of TE modes in rectangular waveguide. Write the significance of each expression. [7M]
3. a) Briefly explain about TE modes in circular waveguide. [7M]
- b) What is Q factor? Discuss about Q factor of a cavity resonator. [7M]
4. a) List out the various Reentrant cavities and explain them. [7M]
- b) Discuss about output power and efficiency of a klystron amplifier. [7M]
5. a) Write the expressions for four propagation constants in a helix travelling wave tube and explain them qualitatively. [7M]
- b) Derive the expression for Hull cutoff magnetic equation in a magnetron. [7M]
6. a) What is Magic Tee? Explain it and write the applications. [7M]
- b) Discuss about different types of waveguide attenuators. [7M]
7. a) Explain the working principles of TRAPATT Diode. [7M]
- b) Define VSWR. Discuss the procedure for VSWR measurement. [7M]

