

Code No: R32042

R10**Set No. 1****III B.Tech II Semester Supplementary Examinations, April - 2018****MICROWAVE ENGINEERING****(Electronics and Communication Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions****All Questions carry equal marks***********

- 1 a) List the various bands in microwave spectrum. Write the advantages and applications of microwaves [8M]
b) A rectangular wave guide has dimensions 2.5cmX5 cm. Determine the guide Wave length, phase constant (β) and phase velocity (V_p) at a Wavelength of 4.5 cms for the dominant mode. [7M]
- 2 a) Derive the resonant frequency of a TM wave in Circular Waveguide? [8M]
b) Explain the working principle of a microstripline? [7M]
- 3 a) Explain the coupling mechanism through probe technique? [8M]
b) Explain the working principle of a Directional coupler? [7M]
- 4 a) What is Scattering matrix? Write its significance and list out the properties of scattering matrix. [8M]
b) Explain about Faraday rotation and write its use in microwave applications? [7M]
- 5 a) Explain the operation of a 2-cavity Klystron amplifier? [8M]
b) Explain the power output and frequency characteristics of a reflex Klystron Oscillator? [7M]
- 6 a) Draw the circuit diagram of HTWT and explain the bunching process in it? [8M]
b) Explain the constructional details of cavity Magnetron and Electron Trajectory in it? [7M]
- 7 a) List out the differences between TED's and conventional transistors? [8M]
b) Explain the working principle of TRAPATT diode? [7M]
- 8 Write a short notes on [15M]
i) slotted line ii) VSWR meter iii) frequency meter