Total No. of Questions : 8]

SEAT No. :

PC2410

[Total No. of Pages :2

[6354]-528

B.E. (E & TC)

RADIATION AND MICROWAVE THEORY

(2019 Pattern) (Semester- VII) (404181)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer the Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.***
2) ***Neat diagram must be drawn wherever necessary.***
3) ***Figures to the right side indicate full marks.***
4) ***Use of Calculator is allowed.***
5) ***Assume suitable data if necessary.***

Q1) a) A 2 Watt power source is connected to the input of a directional coupler with C = 20dB, D = 25 dB, and an insertion loss of 0.7 dB. Find the output power at the output. Coupled and isolated ports Assume all the ports to he matched. **[6]**

b) Draw and explain circulator. **[6]**

c) Explain the E - Plane Tee with the help of constructional diagram. **[6]**

OR

Q2) a) Explain any one application of magic tee with releant diagram. **[6]**

b) Explain construction & working of isolator. **[6]**

c) Explain construction and working of H plane tee. **[6]**

Q3) a) Explain the operation of two cavity klystron amplifier with neat constructional diagram. **[6]**

b) List the limitations of conventional Tubes? Explain the Interelectrode Capacitance effect in tube. **[6]**

c) Explain Reflex klystron with its constructional diagram. **[6]**

OR

Q4) a) Explain with construction diagram & Operation of Helix type travelling wave tube (TWT). **[6]**

b) Compare the 'O' type klystron tube & 'M' magnetron tube based on an three points **[6]**

c) Explain the working of Cavity magnetron with constructional diagram. **[6]**

P.T.O.

Q5) a) Explain construction and working of Tunnel Diode with its VI characteristics. **[6]**

b) Compare the IMPATT Diode with TRAPATT Diode **[6]**

c) Explain the construction & working of Varactor diode **[5]**

OR

Q6) a) With the help of constructional diagram explain the working of Schottky Barrier Diode. **[6]**

b) Explain Gunn diode. With its construction and VI characteristics. **[6]**

c) Draw constructional diagram and explain the PIN diode state its application. **[5]**

Q7) a) Write short note on applications of Microwave system. **[5]**

b) With the help of block diagram. explain the Impedance measurement using a slotted line. **[6]**

c) Explain the measurement set up to measure VSWR using Tunable Probe Detector. **[6]**

OR

Q8) a) Explain how the unknown frequency and wavelength can be measured using the slotted line technique. **[7]**

b) Explain radiation hazards and safety precaution to avoid them. **[6]**

c) Two identical directional couplers are used in a waveguide to sample the incident and reflected powers. The output of the two couplers are found to be 2.5 mW and 0.25 mW. Determine the VSWR in the waveguide. **[4]**