

**BE (Seventh Semester)**  
*Electronics and Telecommunication*  
*Microwave Communication and Engineering - 328712(28)*  
*2014 - Winter Session , Old Scheme*

## **Chapter 1**

- 1 Define skip distance.? **2**
- 2 why does collision of electron occur in ionosphere? On which factor does the collision frequency depend.? What is the effect on refractive index in presence of collision.? **7**
- 3 Determine the following; **7**
  - (i) Radio horizon distance for transmitting antenna, height of 300ft.
  - (ii) Radio horizon distance for a receiving antenna, height of 100 ft.
  - (iii) Maximum range of communication for above antenna height.?
- 4 Explain forward scatter propagation.? **7**

## **Chapter 2**

- 1 What are the fundamental assumptions under which the quantitative analysis of two cavity klystron is made.? **2**
- 2 What do you mean by  $\pi$ -mode of magnetron.? How the mode separation is done.? Explain the mechanism of oscillation in this mode.? **7**
- 3 A helix TWT is operated with a beam current of 300mA, beam voltage of 5 kV and characteristic impedance of  $20\Omega$ . What length of helix will be selected to give an output power gain of 50dB at 10 GHz.? **7**
- 4 Derive the expression for distance L at which the maximum fundamental component of current occurs in case of a two cavity Klystron.? **7**

## *Chapter 3*

- 1 A tunnel diode has  $R_j=60\Omega$ ,  $R_s= 9\Omega$ ,  $C_j= 0.6\text{p.f.}$  and  $L_s= 1\text{mH.}$  find resistive cutoff frequency and self-resonant frequency. **2**
- 2 Which transistor configuration is used for high speed switching application.? Explain its operation.? **7**
- 3 What are the different oscillation mode of Gunn diode.? **7**
- 4 Explain the operation of TRAPATT.? **7**

## *Chapter 4*

- 1 writw thw properties of S-matrix.? **2**
- 2 Derive S-matrix for E-plane Tee.? **7**
- 3 What is ferrite notation.? Explain the function of any two derive based upon ferrite rotation.? **7**
- 4 Why is direction coupler used.? Draw its schematic and define the various performance parameters of it.? **7**

## *Chapter 5*

- 1 What is the drawback of filter design by image parameter method.? **2**
- 2 Explain wave analysis of periodic structure.? **7**
- 3 Expaln filter design by insertion loss method.? **7**
- 4 Explain the filter design by image parameter method.? **7**