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IVth Sem 16th of Jan

Roll No. 270503 Total Pages : 2

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BT-7/D07

MICROWAVE ENGINEERING

Paper-ECE-407 E

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt five questions in all. All questions carry equal marks.

1. (a) What is the significance of Q factor ? What is Cavity resonator and its importance ? 10
- (b) How impedance matching can be done using slotted line section ? What is the significance of VSWR ? Also give the formula for insertion loss. 10
2. (a) Justify how Reflex klystron acts as oscillator and comment why pi mode magnetron is preferred. 10
- (b) What are the applications of Travelling wave tube and Two-cavity klystron alongwith suitable diagram ? 10
3. (a) What is Scattering matrix ? Explain its properties and also justify that why TEM mode does not essential in waveguides. 10
- (b) What do you mean by Dominant mode ? Give the dominant mode for circular and rectangular waveguide. 5
- (c) What are the properties of Directional coupler ? Explain rat race junction ? 5

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4. (a) Explain Gunn effect and Negative diffraction resistance phenomenon alongwith well labelled diagram. 10
- (b) Explain any two average transient time devices alongwith applications. 10
5. (a) What is the significance of Resistive card in case of isolator ? Explain its properties. Also explain why an isolator and lowpass filter are located after an unknown generator. 10
- (b) Describe the following :
- (i) Stub.
 - (ii) Phase shifters.
 - (iii) Attenuators.
 - (iv) Tuning screws. 10
6. (a) What is the Twist in waveguide ? Explain its operation. 10
- (b) What is the significance of term Critical magnetic field and its use in connection with magnetron ? 10
7. (a) Explain the following terms :
- (i) Transient time.
 - (ii) Field domain formation. 10
- (b) Briefly explain and derive the relation for SWR. 10
8. (a) Draw the modes for TE_{11} , TE_{22} , TE_{32} for circular and rectangular waveguides. 10
- (b) Derive the Scattering matrix for directional coupler. 10