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6th Sem / Branch : Eltx.  
Sub.: Microwave & Radar Engg.

Time : 3Hrs. M.M. : 100

### SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 The Ultra High frequency ranges from

- a) 300KHZ-300 MHZ
- b) 300 MHZ - 3 GHZ
- c) 3 GHZ-300 GHZ
- d) None of the above

Q.2 One of the following is a crossed field device.

- a) Magnetron
- b) TWT
- c) Two cavity klystron
- d) Reflex klystron

Q.3 Which of following exhibits negative resistance.

- a) TWT
- b) Impatt diode
- c) Gunn Diode
- d) Reflex klystron

Q.4 One of the following modes does not exist in wave guide.

- a) TE<sub>11</sub>
- b) TEM
- c) TE<sub>10</sub>
- d) TM<sub>01</sub>

- Q.26 Define group velocity and phase velocity.
- Q.27 Differentiate between TE & TM mode.
- Q.28 Write short note on Impatt diode.
- Q.29 Name different Microwave components used in Microwave Communication.
- Q.30 Define space wave propagation.
- Q.31 Write a note on Horn Antenna.
- Q.32 Write a note on troposcatter communication.
- Q.33 Draw block diagram of CW Radar system.
- Q.34 Explain concept of unambiguous range in Radar.
- Q.35 Write different application of Radar.

### SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Explain working principle of microwave communication link with help of suitable diagram.
- Q.37 Draw and Explain construction and working of multi cavity magnetron.
- Q.38 What is the significance of RADAR display. Explain RADAR display PPI with neat diagram

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Q.5 Directivity of an antenna is

- a) Directive gain expressed in decibels
- b) Maximum valued of directive gain
- c) Directly proportional to its beam width
- d) Same as directive gain

Q.6 Duplexer is

- a) An oscillator
- b) A Microwave switch
- c) An amplifier
- d) An active device

Q.7 Echo is

- a) Transmitted signal
- b) Modulated signal
- c) Demodulated signal
- d) Reflected Signal

Q.8 Radar is used for

- a) Ground mapping
- b) Airport surveillance
- c) Weather forecast
- d) All of above

Q.9 Beam width is directly proportional to

- a) Wavelength
- b) Frequency
- c) Time
- d) All

Q.10 The following techniques are Doppler filtering techniques that reject stationary clutter and where radial velocity is not measured

- a) MTI
- b) CW
- c) FMCW
- d) Pulse Rader

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### SECTION-B

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

Q.11 What is the frequency range of microwave.

Q.12 What is range of C-band?

Q.13 Name any two waveguide.

Q.14 Define guide wavelength.

Q.15 Draw H-plane TEE.

Q.16 Write full form of TEM.

Q.17 Define isolator.

Q.18 Define directivity.

Q.19 Radar stands for \_\_\_\_\_.

Q.20 Write full form of FMCW.

### SECTION-C

**Note:** Short answer type questions: Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 List various applications of microwave.

Q.22 Explain TWT structure and its operation.

Q.23 What is a slotted section? Why it is used?

Q.24 What is a waveguide? Discuss its merits.

Q.25 Write a note on cut-off wavelength.

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