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221063A

**6 th Sem. / ECE, ECE (For Speech and Hearing Impaired)**

**Subject : Microwave and Radar Engineering**

Time : 3 Hrs.

M.M. : 60

**SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory  
(6x1=6)

Q.1 A waveguide can consider to be equivalent to a

- a) High pass filter      b) Low pass filter
- c) Band pass filter      d) Band reject filter

Q.2 How many cavities are there in a reflex klystron

- a) 4                              b) 3
- c) 2                              d) 1

Q.3 Millimetric waves corresponds to a frequency range of:

- a) 30 to 300 KHz      b) 30 to 300 GHz
- c) 30 to 300 MHz      d) 3 to 30 Ghz

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Q.4 The function of a slotted line is

- a) To measure frequency
- b) To measure the variation in field strength along a waveguide
- c) To measure impedance
- d) None of these

Q.5 PPI in a radar system stands for

- a) Plan position indicator
- b) Plan position image
- c) Pulse position indicator
- d) Prior position identification

Q.6 Which of the following regarding a microwave link is incorrect ? A microwave link

- a) Uses reflector type antenna
- b) Can operate from 1MHz onwards
- c) Uses repeaters to increase the range
- d) Uses line of sight propagation.

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### SECTION-B

**Note:** Objective/ Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 Frequency range of X frequency band is.....
- Q.8 The modes of propagation supported by a rectangular waveguide is TM and TE .(T/F)
- Q.9 Gunn diode exhibits negative resistance (T/F)
- Q.10 Full form of RADAR is.....
- Q.11 ..... is used for measuring the microwave frequency ?
- Q.12 At microwave frequencies, the size of antenna becomes very small/ very large ?

### SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 List the various microwave frequency bands
- Q.14 Write a short note on cutoff wavelength and guide wavelength.
- Q.15 Explain the construction of reflex klystron?
- Q.16 What are the different type of waveguides. Explain ?
- Q.17 Explain the basic radar range equation.
- Q.18 What is use of helix in TWT.

Q.19 Give the construction and basic principle of parabolic dish antenna .

Q.20 Give the basic idea of troposcatter communication.

Q.21 Explain the construction and working of an isolator .

Q.22 Explain different applications of magic tee.

### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain in detail basic pulse radar system with the help of block diagram.

Q.24 Draw and Explain the block diagram and working principle of microwave communication link.

Q.25 Write a short note on following :

- a) Gunn diode
- b) Impatt diode