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Roll No. .....

5th Sem./ Branch : Eltx

Subject:- Microwave & Radar Engineering

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 1 GHz = _____ MHz

a) 10^0 b) 10^1

c) 10^2 d) 10^3

Q.2 _____ is used for making GUNN Diode.

a) Si b) Ge

c) GaAs d) AI

Q.3 An E-Plane TEE has _____ number of ports

a) 2 b) 3

c) 4 d) 5

Q.4 Klystron works on the principle of _____ modulation

a) Amplitude b) Frequency

c) Phase d) Velocity

Q.5 The number of semiconductor layers in IMPATT diode is _____

a) 4 b) 3

c) 2 d) 1

Q.33 Explain in brief the concept of Doppler effect in Radars.

Q.34 Define the term " MODE", Draw field configuration of TE_{10}MODE.

Q.35 Show how TDMA system works ?

SECTION-D

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

Q.36 Explain in detail the bunching process in reflex klysteron.

Q.37 (1) Explain Tropospheric propagation (5)

(2) Explain VSAT in brief. What its advantages.(5)

Q.38 Explain in details the working principle of Directional coupler. Writes its applications.

Q.6 The commonly used mode for transmission is _____

a) TE_{01} b) TE_{10}

c) TE_{02} d) TE_{20}

Q.7 Which material is used for making waveguides ?

a) Iron b) Steel

c) Copper d) Aluminium

Q.8 Directivity of directional coupler is up to _____ dB.

a) 20 b) 25

c) 30 d) 35

Q.9 For a frequency of 3 GHz, the wavelength will be

a) 10 meters b) 1 meters

c) 10 c.m d) 1 c.m

Q.10 Altimeter is also known as _____ Radar

a) Pulse b) CW

c) FMCW d) MTI

SECTION-B

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

Q.11 What is full form of IMPATT ?

Q.12 Which mode can not exist in wave guides ?

Q.13 Define maximum unambiguous range.

Q.14 Draw radiation pattern of HORN antenna

Q.15 Define Phase Velocity.

Q.16 Draw a CORNER.

Q.17 Write any two applications of Microwaves.

Q.18 Expand FMCW

Q.19 Define cut off wave length

Q.20 Define coupling factor

SECTION-C

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

Q.21 Explain in brief the advantages of microwaves.

Q.22 Explain the significance of transit time in microwave tubes.

Q.23 Write all microwave bands with their frequency ranges.

Q.24 Explain in brief the working of detector mount.

Q.25 Show how bunching takes place in Magnetron ?

Q.26 Explain microwave communication link in brief.

Q.27 With the help of diagram, Explain Horn antenna.

Q.28 Explain the basic principle of PPI Radar display.

Q.29 Explain in brief the significance of RADAR range equation.

Q.30 With the help of diagram, Explain Pulse Radar.

Q.31 Show how MAGIC TEE works ?

Q.32 Explain the concept of DUCT propagation.