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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 C Band has frequency range of _____ Reflex Klystron has ____ no. of cavities

a) 1-2 GHz b) 2-4 GHz
c) 4-8 GHz d) 8-12 GHz

Q.2 At microwave frequencies, the size of antenna becomes

a) Large b) Very large
c) Small d) Very small

Q.3 The dielectric in wave guides is _____

(a) Glass (b) Air (C) paper (d) Mica 1 GHz=

a) 10^3HZ b) 10^6HZ
c) 10^9HZ d) 10^{12}HZ

Q.4 Which mode is called dominant mode?

a) TE_{01} b) TE_{10}
c) TE_{02} d) TE_{20}

Q.5 The number of cavities in reflex klystron are_____

a) Zero b) 1
c) 2 d) 3

Q.6 Ideal directional coupler has_____ directivity

a) Zero b) Unity
c) Infinite d) None of these

Q.7 A magic TEE has_____ number of ports

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

Q.8 Height of Troposphere is _____

a) 2 k.m b) 5 k.m
c) 10 k.m d) 20 k.m

Q.9 RADAR based on Doppler effects is _____

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

Q.10 Which of the following is microwave antenna?

a) Horn b) Yagi
c) Rhombus d) None of these

SECTION-B

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

Q.11 Expand the term VSAT.

Q.12 What is the frequency range of MILLIMETER-BAND?

Q.13 What is role of duplexer?

Q.14 Difine microwaves.

Q.15 IMPATT stands for_____

Q.16 What are units of attenuation?

Q.17 Draw radiation pattern of dish antenna.

Q.18 Define Faraday's Rotation law.

Q.19 Expand TDMA.

Q.20 Define Group velocity ?

SECTION-C

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

Q.21 Explain the applications of microwaves in brief ?

Q.22 What is significance if transit time ?

Q.23 Draw GUNN diode structure, Explain its principle in brief ?

Q.24 Show how bunching takes place in T,W.T ?

Q.25 Draw fiels configuration of TE_{10} mode

Q.26 Explain Why TEM is not possible in a wave guide?

Q.27 Explain, Why conventional tubes can not be used for microwaves frequencies?

Q.28 Explain basic principle of CW Radar.

Q.29 Explain in brief the working of E-Plane TEE.

Q.30 With the help of diagram, Explain cassegrain feed machanism in dish antenna.

Q.31 Show how a duct is formed?

Q.32 Write the RADAR range equation indicating the meaning of each term in details.

Q.33 Explain in brief about working of A-Scope

Q.34 Explain in brief the working of A-Scope

Q.35 Explain the working of VSAT in detail

SECTION-D

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

Q.36 With the help of block diagram, explain Microwave communication link in detail.

Q.37 Draw and explain the MTI RADAR.

Q.38 With the help of neat diagram, explain the working of Magnetron.