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6th Sem / Eltx
Subject:- Microwave and Radar Engineering

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 Reflex Klystron has _____ no. of cavities. (CO1)

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

Q.2 S Band has frequency range of _____ (CO1)

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

Q.3 At microwave frequencies, the size of antenna becomes _____ (CO1)

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

Q.4 The propagation medium in wave guides is_____ (CO3)

a) Glass b) Air
c) Paper d) Mica

Q.5 1 GHz = _____ (CO1)

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

Q.6 _____ mode is called as dominant mode? (CO3)

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

Q.7 A H plane TEE has _____ number of ports. (CO7)

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

Q.8 Height of Troposphere is_____. (CO1)

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

Q.9 If minimum detectable signal increases. Then RADAR range_____. (CO8)

a) Increases b) Decreases
c) Does not change

Q.10 Radiation pattern of HORN antenna is_____ (CO6)

a) unidirectional b) Bidirectional
c) Omnidirectional

SECTION-B

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

Q.11 What is the frequency range of VLF? (CO1)

Q.12 Expand the term IMPATT. (CO1)

Q.13 Isolators are made up of _____ material. (CO4)

Q.14 Draw a BEND. (CO4)

Q.15 Name the diagram used to show bunching process. (CO1)

Q.16 What are units of coupling factor? (CO5)

Q.17 Write full form of RADAR. (CO8)

Q.18 Write two applications of TWT. (CO1)

Q.19 What is role of duplexer in Radars? (CO8)

Q.20 Define a MODE. (CO3)

SECTION-C

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

Q.21 Define transit time, what is its significance? (CO1)

Q.22 What is basic principle of GUNN diode? (CO1)

Q.23 Define microwaves, for a 1 KHz signal, calculate wavelength. (CO1)

Q.24 Explain in brief the working principle of T.W.T. (CO1)

Q.25 Draw field configuration of TE_{10} mode. (CO3)

Q.26 Explain in brief the working of A-Scope. (CO9)

Q.27 Explain, Which mode is not possible in wave guides and why? (CO3)

Q.28 Explain basic principle of Pulse Radar. (CO8)

Q.29 Explain in brief the working of Magic TEE. (CO7)

Q.30 Explain the advantages of microwaves in brief. (CO1)

Q.31 Show the structure of HORN, how it works? (CO6)

Q.32 Write the importance of RADAR range equation. (CO8)

Q.33 Explain in brief the concept of tropo-scatter communication. (CO10)

Q.34 Define free space wavelength, hot it is related with guided wave length? (CO4)

Q.35 Explain the working of circulators. (CO2)

SECTION-D

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

Q.36 With the help of neat diagram, explain the working of Two cavity klystron. (CO1)

Q.37 Draw and explain the MTI RADAR. (CO8)

Q.38 With the help of block diagram, explain Microwave communication link in detail. (CO10)

(**Note:** Course outcome/CO is for office use only)