Exam.Code:0930
Sub. Code: 6604

2054

B.E. (Electronics and Communication Engineering)
Sixth Semester
EC-601: Microwave and Radar Engineering

Time allowed: 3 Hours Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

a) Write the scattering matrix of four port circulator.

b) Differentiate among the function of an isolator and attenuator.

c) Give four examples of Microwave transitions?

d) What is velocity modulation?

e) What are the applications of a Magic TEE?

f) Draw the block diagram of Radar.

g) What is volume clutter?

h) A reflex klystron operates at 8GHz at a peak of n=2 mode with Vo=300V R_{sh}=20K ohms and L=1Imm if the gap transit time and beam loading are neglected. Find the repeller voltage.

i) Write properties of scattering matrix.

j) Give operating principals of FM-CW radar? (10x1)

UNIT - I

II. Explain the following terms for a directional coupler.

a) Directivity

b) Coupling factor

c) Insertion loss.

Derive scattering matrix of Multihole directional coupler. (10)

III. How unknown frequency is measured at microwave frequencies. Discuss two methods? (5+5)

IV. State Two valley theory of GUNN Diode to explain negative resistance. Give constructional details of Gunn Diode. (5+5)

P.T.O.

UNIT - II

V. Explain the process of Velocity Modulation in Cylindrical Magnetron and derive Hull cut off frequency. (5+5)

VI. Write short notes on following:-

a) Tracking Radar

b) Radar Cross section (5+5)

VII. Explain the working of MTI Radar with the help of block diagram. What are the remedies to eliminate the effect of Blind Speed? (10)

x-x-x