Roll No. ..... Total Pages : 2

BT-8/M-20 **38035**

MICROWAVE AND RADAR ENGG.

Paper–EE-420E

Option–I

Time Allowed : 3 Hours] [Maximum Marks : 100

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. All question carry equal marks.

UNIT–I

1. With suitable block diagram explain the working of Magnetron. Also explain the bunching process in Magnetron. 20

2. (a) Explain the limitations of Vaccum tubes at high frequencies with special reference to interelectrode inductance, capacitance, Transit time effect and gain bandwidth product. 10

   (b) Write short note on Light House Tube. 10

UNIT–II

3. Write short notes on the following :

   (a) Parametric Amplifier. 10

   (b) IMPATT DIODE. 10

4. (a) With suitable energy band diagram explain the V-I characteristic of Tunnel diode. 10

   (b) With suitable diagram explain the construction, working principle and V-I characteristics of Gunn diode. 10

UNIT–III

5. (a) Write short note on impedance transformation and Matching. 10

   (b) Write short note on phase shifters. 10

6. (a) Why we need Scattering parameters? What are the properties of Scattering matrix ? 10

   (b) Write short note on E-plane Tee, H-plane Tee and Magic Tee. Also find S-Parameters for E-plane Tee and Magic Tee. 10

UNIT–IV

7. For what purpose we are using CW Radar? Explain working of CW radar with suitable diagram. What are limitations of CW radar and how they can be removed ? 20

8. Write short notes on the following :

   (a) Non-Coherent MTI radar.

   (b) Radio aids to Navigation. 20