PVP 12

Code: **ECMC2T1**

I M.Tech - II Semester – Regular Examinations – AUGUST 2016

SOLID STATE MICROWAVE DEVICES & CIRCUITS
(MICROWAVE & COMMUNICATION ENGINEERING)

Duration: 3 hours Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. a) Explain the structure of reflex klystron and give the expression for its power output and efficiency. 7 M

   b) Write a note on structure of a TWT. 7 M

2. a) Explain the physics and operation of PIN Diode. 7 M

   b) Give the equivalent circuit diagram of a varactor diode and describe its application. 7 M

3. a) Give the structure of Read diode and explain the avalanching process. 7 M

   b) Write a note on physics of IMPATT Diode. 7 M

4. a) Define GUNN effect. 7 M

   b) Explain different modes of operation of GUNN diode. 7 M

5. a) Explain the principle of operation and VI characteristics of Microwave BJT. 7 M

b) Briefly explain the VI characteristics of JFET. 7 M

6. a) Give the equivalent circuit and operation of MESFET. 5 M

b) Distinguish between MESFET and MOSFET. 4 M

c) Give the structure of HEMT. 5 M

7. Write a short notes on the following.
   a) Noise characterization 5 M
   b) Power gain 5 M
   c) Dynamic Range 4 M

8. a) Write a note on 3 port S- Parameters of Transistors. 7 M

b) Write a note on fixed frequency oscillator. 7 M