Code No: NR320403 **NR**

III B.Tech II Semester Supplementary Examinations, April/May 2005
MICROWAVE ENGINEERING
(Electronics & Communication Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Draw the applegate diagram of a Reflex Klystron and explain velocity modulation and bunching.
   (b) Describe the construction of a multicavity Klystron and the coupling techniques to be adopted for more interaction between RF electron beams.
2. (a) How is bunching achieved in a cavity magnetron . Explain the phase focusing effect.
   (b) Discuss types of magnetrons and list the important applications.
3. (a) Explain how Gunn diode can be used as an amplifier.
   (b) Distinguish between transit time domain mode and quenched domain modes of operation of a Gunn diode.
4. (a) Explain the physical structure and I−V characteristics of a Tunnel diode. Hence establish its microwave applications.
   (b) Draw the equivalent circuit of a crystal diode and explain its features.
5. Describe the principles of operation and constructional details for the following type of attenuators:
   (a) Coaxial attenuator
   (b) Slab and Flap attenuators
6. (a) What is the magic associated with a magic Tee? Illustrate its applications.
   (b) Obtain the S-matrix of a wave guide shunt Tee. Comment on the result.
7. With a neat block diagram, explain the method of measurement of the scattering matrix parameters of a E-plane Tee.
8. (a) With a schematic diagram, explain the construction of a micro stripline.
   (b) Mention the advantages of striplines over other transmission lines.

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