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PU-003-1154007 Seat No. _____

M. Sc. (Electronics) (Sem. IV) (CBCS) Examination

August - 2020

Microwave Electronics : Paper - 16

(New Course)

Faculty Code : 003

Subject Code : 1154007

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) All question carry equal marks.
(2) Figures on right hand side indicate marks.

1 Answer the following : (Any **Seven**) **14**

(1) Give the names of geometries of microwaves transistors.
(2) Draw structure of coaxial cavity and radial cavity.
(3) Draw slow wave structures used in travelling wave tubes.
(4) Which three power sources are used in reflex klystron?
(5) Which three cavities are used in multi cavity klystron?
(6) Which three characteristics of ordinary vacuum tubes become increasingly important as frequency rises?
(7) Define the term velocity modulation.
(8) Give the full forms of BARITT and IMPATT.
(9) Why FET is referred as field effect transistor?
(10) Define the term transit time in vacuum tubes.

2 Answer the following : (Any **Two**)

(1) Define the term microwaves. Give its characteristics features and applications. **7**
(2) Describe the basic principles of velocity modulation. **7**
(3) Explain the basic theory of operation of travelling wave tubes with electron beam and slow wave structure. **7**

3 Answer the following :

(1) How multicavity klystron amplifier works? **7**

(2) Discuss two valley model theory. **7**

OR

3 Answer the following :

(1) Describe crossed electric and magnetic field in magnetron. **7**

(2) Draw and explain the physical structure of MESFET. **7**

4 Answer the following : (Any **Two**)

(1) Describe the principles of operation of TRAPATT mode of diode. **7**

(2) Define the terms HMIC & MMIC. List the basic properties required for an ideal MIC materials. **7**

5 Answer the following : (Any **Two**)

(1) Discuss the dominant mode TE_{10} in rectangular wave guide with illustration and also explain current distribution in it. **7**

(2) Discuss the dielectric measurement with microwaves. **7**

(3) Write notes on Gunn oscillator circuits. **7**

(4) Discuss backward wave oscillator with interaction mechanism. **7**
