



Seat No. _____

HC-003-1154007

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

April - 2023

Microwave Electronics : Paper - XVI

(New Course)

Faculty Code : 003

Subject Code : 1154007

Time : $2\frac{1}{2}$ Hours / Total Marks : 70

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

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

- (1) Which three characteristics of ordinary vacuum tubes becomes increasingly important as frequency rises?
- (2) Gives the difference between TEDs and microwave transistor.
- (3) Which three power sources are used in reflex klystron?
- (4) Give the name of geometries of microwave transistor.
- (5) Which three cavities are used in multi cavity klystron?
- (6) Give the definition of cavity resonator. Draw the shapes of coaxial and radial cavity.
- (7) Give the full forms of BARITT and IMPATT.
- (8) Give the types of wave meters.
- (9) The microwave solid-state devices can be broken down into _____, _____, _____, _____.
- (10) What do you mean by lumped element?

- 2 Answer the following : (Any two)
- (1) Explain. the: basics principles of microwave tubes and describe the limitation of conventional tubes. 7
 - (2) Define the term microwave: Give's the characteristics features and applications of microwaves. 7
 - (3) Describe the 'basic principles of velocity modulation. 7
- 3 Answer the following :
- (1) How two cavity klystron amplifier Works? 7
 - (2) Explain the basic theory of operation of travelling wave tubes with electron beam and slow wave structure. 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
 - (3) Describe the reflection of microwave from a metal surface with illustration. 7
- 5 Answer the following : (any two)
- (1) Explain gunn oscillator circuits. 7
 - (2) Discuss the two valley model theory of TEDS. 7
 - (3) Draw and discuss the wave guide tee and magic tee. 7
 - (4) Discuss the dielectric properties of material determine at microwave frequencies by dielectric measurement. 7
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