



DAI-003-1154007

Seat No. _____

Electronics (Sem. IV) (CBCS) Examination

April - 2022

Microwave Electronics : Paper-16

(New Course)

Faculty Code : 003

Subject Code : 1154007

Time : 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) Define the term microwave.
- (2) Give the difference between TEDs and microwave transistors.
- (3) Give the names of geometries of microwave transistors.
- (4) Which three power sources are used in reflex klystron ?
- (5) Define the term velocity modulation.
- (6) Draw slow wave structures used in microwave linear tubes.
- (7) Which three characteristics of ordinary vacuum tubes become increasingly important as frequency rises ?
- (8) Define the term transferred electron effect.
- (9) Give the full form of TRAPPAT and IMPATT.
- (10) Give the definition of cavity resonatory. Draw the shapes of coaxial and radial cavities.

2 Answer the following : (Any two)

- (1) Describe the basic principles of velocity modulation **07**
- (2) Give the characteristics features and applications of microwave. **07**
- (3) Explain the basic theory of operation of travelling wave tubes with electron beam and slow wave structure. **07**

- 3** Answer the following :
- (1) How two cavity klystron amplifier works ? **05**
 - (2) Discuss two valley model theory. **05**
 - (3) Write short notes on Reflex klystron. **04**

OR

- 3** Answer the following :
- (1) Describe crossed electric and magnetic field in magnetron. **05**
 - (2) Draw and explain the physical structure of MESFET. **05**
 - (3) Write notes on Backward wave oscillator. **04**

- 4** Answer the following : (Any two)
- (1) Describe the reflection of microwave from a metal surface with illustration. **07**
 - (2) Describe the principles of operation of TRAPATT mode of diode. **07**
 - (3) Define the terms HMIC & MMIC. List the basic properties required for an ideal MIC materials. **07**

- 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 **07**
 - (2) Describe differential negative resistance. **07**
 - (3) Write notes on Gunn oscillator circuits. **07**
 - (4) Discuss the dielectric properties of material determine at microwave frequencies by dielectric measurement. **07**