

M.Sc. S.Y. (Electronics) (CBCS Pattern) Sem-IV
**PSELT403.1 / PSELET403-DSE-3 : Paper-III - Microwave & Optical
Communication**

P. Pages : 2

Time : Three Hours



GUG/W/22/11370

Max. Marks : 80

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- Notes : 1. All questions are compulsory and carry equal marks.
2. Draw a well labelled diagrams wherever necessary.

Either :

1. a) Describe the propagation of EM waves through waveguide. 8
b) Describe two cavity Klystron oscillator with suitable diagram. 8

OR

- c) Describe the structure of GaAs oscillator with suitable diagram. 8
d) Write a note on: 8
i) TE waves
ii) TEM waves

Either :

2. a) Explain the following terms: 8
i) Directional coupler
ii) Cavity resonator
b) What is scattering matrix? Explain its importance and symmetry. 8

OR

- c) Write a note on: 8
i) Attenuators
ii) Tees
d) Explain the method for measurement of voltage standing wave ratio (VSWR) with suitable diagram. 8

Either :

3. a) Explain the principle of optical communication. State its advantages. 8

- b) Write a note on: 8
- i) Step index
- ii) graded index

OR

- c) What is dispersion? Describe material dispersion. 8
- d) State the important characteristics of a optical fiber. List various optical detectors. 8

Either :

4. a) Explain the structure of optical fiber cable. 8
- b) Explain the following terms: 8
- i) Fiber joints
- ii) Couplers & connectors

OR

- c) What is attenuation? Explain the measurement of attenuation in optical fibres. 8
- d) Describe various optical transmitters and receivers. 8
5. a) Explain the operation of TWT amplifier. 4
- b) Explain the method for microwave power measurement. 4
- c) Explain the concept of ray model in fiber optics. 4
- d) What is splicing of optical fibers? Explain. 4
