

M.Sc. S.Y. (Electronics) (New CBCS Pattern) Semester - IV
PSELT403.1 - DSE Paper-III : Microwave & Optical Communication

P. Pages : 1

Time : Three Hours



GUG/S/23/11370

Max. Marks : 80

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- Notes : 1. All questions are compulsory and carry equal marks.
2. Draw neat and label diagrams wherever necessary.

Either :-

1. a) Write a note on reflex klystron oscillator with suitable diagram. 8
b) Explain the mode TE_{10} in rectangular waveguide. 8

OR

- c) Discuss the propagation of EM waves through waveguide. 8
d) Writ suitable schematic diagram, explain the working of backward wave oscillator. 8

Either :-

2. a) Explain the following terms. 8
i) Directional coupler. ii) Circulators.
b) Explain measurement technique of phase shift and frequency at microwave region. 8

OR

- c) What is scattering matrix of a microwave junction? Derive the scattering matrix of H plane Tee junction. 8
d) Explain method measurement VSWR at microwave frequency. 8

Either :-

3. a) Write a note on. 8
i) Step index ii) Graded index.
b) What is dispersion? Explain material dispersion. 8

OR

- c) Explain that optical fiber act as wave guide. 8
d) State various optical detectors and explain any two of them. 8

Either :-

4. a) Explain structure of optical fiber cable. 8
b) Explain following term related to optical fiber cable: 8
i) Fiber joints ii) Coupler and connectors.

OR

- c) Discuss the dispersion measurement in optical fiber. 8
d) Describe the technique refractive index profile measurement. 8

5. a) Explain the operation of GaAs oscillators. 4
b) What is cavity resonator? Explain. 4
c) Explain concept of ray model in fiber optics. 4
d) Explain working of an optical receiver. 4
