

QP CODE: 26019354



Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, MARCH 2026

Fourth Semester

ELECTIVE - EL800403 - FIBRE OPTIC COMMUNICATION TECHNIQUES

M Sc ELECTRONICS, M Sc APPLIED ELECTRONICS

2019 Admission Onwards

FA536887

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. What is the necessity of cladding for an optical fiber?
2. What is a linearly polarized mode?
3. Mention the way to reduce macro bending losses.
4. What are the advantages of LED?
5. What is meant by fiber splicing?
6. GaAs has a band gap energy of 1.43 eV at 300 K. Determine the wavelength above which an intrinsic photo detector fabricated from this material will cause to operate.
7. Define a LAN.
8. What does the acronym SONET stands for?
9. What is the function of optical attenuator?
10. What is an optical power meter?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. What are the advantages of optical fibre communication?
12. How fiber optic cables are made?
13. Describe for a fabry perot resonator laser diode, modes and threshold conditions.





14. Give a brief account of how light is coupled from a laser-diode to fiber.
15. Compare the performance of APD with PIN diode.
16. Explain in detail a star topology?
17. Explain the working of an optical spectrum analyser.
18. Explain the terms a) stressed eye b) jitter c) rise time and fall time

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Explain the phenomenon of reflection, refraction and total internal reflection using Snell's law with figures and calculations. A silica optical fiber with a large core diameter has a core refractive index of 1.5 and a Cladding refractive index of 1.47. Determine the critical angle and acceptance angle in air for the fiber.
20. Derive expressions for material dispersion and waveguide dispersion and explain them.
21. Write a brief note on fiber alignment and joint loss.
22. What are OADMs? Explain with neat diagrams an optical cross connect.

(2×5=10 weightage)

