

22647

24225

3 Hours / 70 Marks

Seat No.

--	--	--	--	--	--	--	--

- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
 - (8) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. Attempt any FIVE of the following :

10

- (a) Draw frequency spectrum of optical fiber communication.
- (b) Define w.r.t. to fiber optic cable :
 - (1) Numerical aperture
 - (2) Acceptance angle
- (c) List the types of optical amplifiers.
- (d) State the applications of SONET (any 2).
- (e) List the different applications of satellite communication.



(f) Define following terms w.r.t. satellite :

(1) Look angle

(2) Footprint

(g) Define EIRP and give its expression.

2. Attempt any THREE of the following :

12

(a) With neat diagram explain Dispersion loss in detail.

(b) Explain semiconductor optical amplifier.

(c) Explain operation of LASER diode with neat diagram and write its two advantages.

(d) Give the comparison of Ethernet standards of optical network.

3. Attempt any THREE of the following :

12

(a) Explain the working of satellite transponder.

(b) With the help of neat diagram explain function of optical splitter.

(c) Compare between LED and LASER (4 points).

(d) State need of splicing and list different techniques used for optical fiber and explain any one in detail.

4. Attempt any THREE of the following :

12

(a) Describe WDM system with neat diagram and state its two features.

(b) Explain the concept of total internal reflection used in optical fiber.

(c) Draw block diagram of OTDR and explain its working.

(d) Explain in detail the frequency allocation used for satellite services.

(e) Illustrate the working of telemetry and tracking control subsystem.

5. Attempt any TWO of the following :**12**

(a) Draw block diagram of satellite earth station and state function of :

(1) LNA

(2) Power subsystem

(b) Explain SNET architecture with neat diagram.

(c) Explain Bending loss and Coupling loss in detail.

6. Attempt any TWO of the following :**12**

(a) Describe the working of VSAT architecture with applications.

(b) Explain orbit perturbations and explain effect of Atmospheric Drag on satellite motion.

(c) With neat diagram, explain operation of GPS transmitter and receiver.
