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**MTECH**  
**(SEM I) THEORY EXAMINATION 2023-24**  
**OPTICAL COMMUNICATION**

TIME: 3HRS

M.MARKS: 70

**Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

1. Attempt *all* questions in brief.

2 x 7 = 14

a.	What are the advantages of EDFA?
b.	Define ATM.
c.	State the concept of WDM.
d.	Define modulation.
e.	Explain CDMA.
f.	Write the advantages of optical fiber communication.
g.	Write the significance of solitons.

**SECTION B**

2. Attempt any *three* of the following:

7 x 3 = 21

a.	Explain Coherent optical fiber Systems with diagram.
b.	There are different types of Semiconductor Optical Amplifiers. Explain their working mechanism to amplify the optical signal. Also discuss their respective characteristics.
c.	With help of block diagram briefly explain optical TDM system.
d.	What are the types of Solitons based on the various aspects? How are they generated?
e.	What is ATM? Explain structure of ATM cell.

**SECTION C**

3. Attempt any *one* part of the following:

7 x 1 = 7

a.	Explain Raman amplifier? Also, give its working and characteristics.
b.	Compare the performance and applications of EDFA versus SOA.

4. Attempt any *one* part of the following:

7 x 1 = 7

a.	Explain SONET/SDH topology? Also provide its data rates.
b.	What is modulation? Explain the various types of modulation.

5. Attempt any *one* part of the following:

7 x 1 = 7

a.	Discuss the various multiple access schemes in Optical Communication Systems.
b.	What are the underlying principles of the WDM techniques?

6. Attempt any *one* part of the following:

7 x 1 = 7

a.	Explain Next generation optical Internets.
b.	What is IP? Compare IPv4 and IPv6.

7. Attempt any *one* part of the following:

7 x 1 = 7

a.	Explain nonlinear effects of soliton systems.
b.	Explain High speed and WDM Soliton systems.