OFC/SH/S/Sem I/ME/CB45/ELX

N.B: 1) Attempt any four questions out of six.　　　Total Marks: 80

2) All questions carry equal marks　　　Duration : 3 Hrs

3) Assume Suitable data, if required and state it clearly.

Q1)

 a) Explain in brief the concept of DWDM network.　　　(05)
 b) What are various losses in optical fiber?　　　(05)
 c) Compare cross-phase and self-phase modulation.　　　(05)
 d) Explain in brief working of Quantum well Laser　　　(05)

Q2) a) Explain the principle of resonant cavity enhancement detector.
  Compare RCE Schottky photodiode and RCE Avalanche photodiode.　　(10)
 b) Explain with a suitable diagram principle of Raman Amplifier and state
  it's applications.　　　(10)

Q3) a) Explain the outside phase oxidation process and compare it with modified
  vapour phase deposition process of fiber fabrication.　　　(10)
 b) Describe scattering in nonlinear optics with suitable examples　　　(10)

Q4) a) Explain in detail with suitable diagram Arrayed wave guide Grating
  (AWG) in integrated optics.　　　(10)
 b) Explain in detail the method to mitigate the effect of Four wave mixing
  in optical fiber communications　　　(10)

Q5) a) Explain various Network topologies used in optical fiber communication
  　　　(10)
 b) Derive the wave equation for circular waveguide in optical fiber.　　(10)

Q6) Write notes on any two (20)

 a) Optical Solitons.
 b) Optical MEMS.
 c) Surface Emitting Lasers.

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