Code No: D3803, D7003, D6503

| **R09** |

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II - Semester Examinations, March/April 2011
OPTICAL COMMUNICATIONS TECHNOLOGY
(COMMON TO COMMUNICATION SYSTEMS, ELECTRONICS &
COMMUNICATION, WIRELESS & MOBILE COMMUNICATIONS)
Time: 3hours   **Max. Marks: 60**
Answer any five questions
All questions carry equal marks
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1.a) Discuss the phenomena of light propagation in dielectric wave slides.
 b) Give an account on stimulated Roman scattering.   [12]

2.a) Design "A star coupler with eight inputs and eight outputs mode by combining 3dB
     couplers: Explain it briefly.
 b) Define grating. Discuss the transmission and reflection gratings.   [12]

3. a) Derive the power transfer function of the Fabry –Perot filter.
 b) Show that the FWHM bandwidth of the acousto –optic filter is $\approx 0.8\lambda_0^2 / \ell An$.   [12]

4. a) Define modulation , and discuss the signal formats for modulation.
 b) What is the meaning of sub carrier multiplexing, and discuss the applications of SCM. [12]

5. a) Write a short notes on error detection and correction.
 b) Discuss in detail optical duo binary modulation.   [12]

6. a) Describe optical automation gain control circuit for an optical amplifier.
 b) How many forms of cross talk arises WDM system? And explain it briefly.   [12]

7. a) Describe the pulse –broadening effect of chromatic dispersion an chirped
     Gaussian   pulses.
 b) Give an account on the importance of isolators and circulators.   [12]

8. Write a short on
   a) Wave length stabilization
   b) Broad cast – and select multi Hop Network.   [12]

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