

R09

Code No: D3803, D7003, D6503

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 Raman scattering. [12]
2. a) Design “A star coupler with eight inputs and eight outputs made 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 duobinary modulation. [12]
6. a) Describe optical automatic gain control circuit for an optical amplifier.
b) How many forms of cross talk arise in WDM system? And explain it briefly. [12]
7. a) Describe the pulse –broadening effect of chromatic dispersion on chirped Gaussian pulses.
b) Give an account on the importance of isolators and circulators. [12]
8. Write a short note on
a) Wave length stabilization
b) Broadcast – and select multi Hop Network. [12]
