2007-CALICUT UNIVERSITY

B.TECH VIII SEMESTER DEGREE EXAMINATION JUNE-2006

OPTICAL COMMUNICATION

(ELECTRONICS AND COMMUNICATION ENGINEERING)

TIME-3HOUR
MARKS-100

ANSWER ALL QUESTIONS

MARKS [8*5=40]

1.(a) What a aormaltraed firequency ? Explain as signi6canoe.

(b) Kxvh- the features of DSF.

(c)Explain the cooeept of tine width in LASER spectrum.

(d)Explain the need for pre-amplifiers in detail.

(e)What are Coherew and non-Coherent fiber bundles ? Explain. Give their applications.

(f)Justify the st t.i'nient : "Dispersion limits the Information currying eapac;ty of the fiber".

(g) What is an opt:cal repeater ? Explain in detail its features.

(h) What is WDM ' Explain its types.

MARKS [4*15=60]

II. (a) (i) Explain in detail the folbwing

I Numerical Aperture.

2 Aooeptance tune.

3 Mode field diameter.

(ii) Compare the parameters of single mode and multi-mode glass fibers.

Or

(b) (i) Explain how attenuation limits the information carrying capacity of optical fibers with equations.

(ti) Explain the non-linear self phase modulation effect in angle mode fibers

III. (a) (i) Explain the principle of operation of semiconductor LASER diode with a neat sketch.

(ii) Explain the requirements of an ideal optical source and an ideal optical detector.

Or

(b) Draw neat sketches of pin phntodetector and API). Explain their detection principle in detail.

IV. (a) (i) Explain :

1 Meridional Ray.

2 Skew Ray.

(ii) Explain the need for equalization in optical fibers.

Or

(b) (i) Differentiate :

1 Coherent from non-coherent optical bundles.

2 Homodyne from heterodyne systems.

V. (a) Draw a neat diagram of EDFA. Explain its principle of operation.

Or

(b) Write short notes on:

I Intermodulation effects in optical amplifiers.

2 Wavelength range of operation of optical amplifiers.