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121054/031054B

5th Sem. / ECE / PE

Subject : Optical Fibre Communication

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

Q.1 a) Core of optical fibre cable is made up of _____.

b) LED stands for _____.

c) What is the use of PIN diode?

d) Define optic.

e) Name any two modulation methods used in optical fibre communication.

f) Define reflection.

g) Define critical angle.

h) Write any two application of optical fibre communication.

i) What is optical frequency range?

j) what is refractive index?

k) What is differentiate between step index and graded index fibre?

l) What causes intrinsic absorption in optical fibre cable?

m) Write equation for attenuation.

n) Define fibre optic switch.

o) Define three port and four port coupler.

p) What is SONET?

q) Define Bit rate.

r) Refractive index of core is more than cladding. (True/false)

SECTION-B

Note: Short answer type questions. Attempt any ten parts 10x4=40

Q.2 i) What is splicing? Name differnt types of splicing.

ii) Draw block diagram of optical transmitter circuit.

iii) What is the principle of light penetration?

iv) What are multiplexing methods used in optical fibre system?

v) Explain snell's law with the help of suitable diagram.

vi) Write a short note on"Dispersion".

vii) Explain principle of operation of injection laser diode.

viii) What is the difference between monomode and multimode fibers?

ix) What is step index fibre? Write refractive index profile for step index profile.

x) What are difference between micro - bending and macro-bending losses?

xi) Explain brief description of avalanche photo diode.

xii) What are characteristics of photo detector used in optical communication?

xiii) Explain fibre alignment and its importance in optical fibre communication system.

xiv) Draw block diagram of basic communication system.

xv) Write a short note on " Acceptance angle".

SECTION-C

Note: Long answer type questions. Attempt any three questions. 3x10=30

Q.3 Explain in detail optical power budgeting.

Q.4 Explain with the help of suitable diagram the basic structure of an optical fibre.

Q.5 What are scattering losses? What are various types of scattering losses?

Q.6 Explain different type of LED structures.

Q.7 Write various advantage and disadvantages of optical communication.