No. of Printed Pages : 4
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181054/171054

5th SEM / Electronic Engg.

Subject : Optical Fiber communication

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 Reflections in many directions

a) Diffuse reflection b) Diffraction
c) Scattering d) Refraction

Q.2 Laser Diode has

a) Coherent light b) Non coherent light
c) Radio light d) UV light

Q.3 A device which convert electrical energy in the form of current into optical energy is called

a) Optical source b) Coupler
c) Adder d) Optical isolator

Q.4 The loss of optical fibre as light travels along a fibre is called

a) Scattering b) Attenuation
c) Reflection d) Dispersion

Q.5 What are two types of optical detectors

a) LED and APD b) APD and laser
c) PIN and APD d) Laser diodes and PIN diodes

Q.6 Only in multimode fibers does which of the following types of dispersion occur

a) Modal b) Material
c) Waveguide d) Chromatic

Q.7 Principle Of LASER is

a) Spontaneous emission
b) Simulated Emission
c) Induced emission d) Both b & c

Q.8 Fibre Optics used which medium to send information

a) Electrons b) Light
c) Photons d) All of above

Q.9 Multimode step index fiber has a large core diameter of range is

a) 100 to 300 μm b) 100 to 300 μm
c) 500 to 800 μm d) 200 to 500 μm

Q.10 What is the unit of light wavelength?

a) Micrometer b) Angstroms
c) Mils d) Fathom

SECTION-B

Note: Very Short answer type questions. All questions are compulsory (10x1=10)

Q.11 Give one disadvantage of optical fiber communication.

Q.12 Define Splicing.

Q.13 Expnad OTDR

Q.14 Expand LASER

Q.15 Define LED.

Q.16 Give one application of Optical Fiber communication.

Q.17 What is optical amplifier.

Q.18 Expand EDFA.

Q.19 What is APD.

Q.20 What is Acceptance angle.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Explain the advantages and disadvantages of optical fiber communication.

Q.22 Explain Radiation losses in optical cable.

Q.23 Explain the principle of light penetration.

Q.24 Explain the characteristics of LASER used in optical communication.

Q.25 Explain in brief injection laser diode.

Q.26 Explain the working of PIN diode.

Q.27 Explain the noise in detectors in optical communication.

Q.28 Explain the principle of operation of Raman amplifiers.

Q.29 Explain the construction of multimode fibers.

Q.30 Compare LED and ILD.

Q.31 Explain optical frequency range.

Q.32 Explain historical perspective of optical fibre communication

Q.33 Explain the type of optical connectors in brief.

Q.34 Briefly explain Step Index fibres and graded index fibers.

Q.35 Explain OTDR.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Explain Avalanche photo diode (APD) in detail with suitable diagram.

Q.37 Explain various types of losses in Optical fibers.

Q.38 Explain the principle of operation of SOA and its types.