QP Code: RD18001059 Reg. No | | | | | | | | | | | AR 18

GIET MAIN CAMPUS AUTONOMOUS GUNUPUR – 765022

B. Tech Degree Examinations, December – 2020

(Fifth Semester)

BECPE 5041 – FIBER OPTIC COMMUNICATION

(ECE)

Time: 3 Hrs Maximum; 100 Marks

The figures in the right hand margin indicate marks.

PART – A: (Multiple Choice Questions) **(1 x 10 = 10 Marks)**

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

(i) 100 to 300 μm (ii) 100 to 300 nm

(iii) 200 to 500 μm (iv) 200 to 500 nm

b. Fiber mostly suited in single-wavelength transmission in O-band is

(i) Low-water-peak non dispersion-shifted fibers (ii) Standard single mode fibers

(iii) Low minimized fibers (iv) Non-zero-dispersion-shifted fibers

c. Losses caused by factors such as core-cladding diameter, numerical aperture, relative refractive index differences, different refractive index profiles, fiber faults are known as _____

(i) Intrinsic joint losses (ii) Extrinsic losses

(iii) Insertion losses (iv) Coupling losses

d. The lower energy level contains more atoms than upper level under the conditions of _____

(i) Isothermal packaging (ii) Population inversion

(iii) Thermal equilibrium (iv) Pumping

e. Mechanical splices,

(i) Require expensive equipment to install (ii) Have extremely low insertion loss and cost per splice

(iii) Can be installed using simple hand tools (iv) Cannot be installed using simple hand tools.

f. Photo diodes are designed to

(i) Detect photons (ii) Collect photons

(iii) Emits photons (iv) Repels photons

g. In WDM multiplexer is used at the,

(i) Receiver end (ii) Not used

(iii) Output side (iv) Transmitting end

h. FBG stands for,

(i) Fiber bag grade (ii) Fiber Bragg Grating

(iii) Front bag grating (iv) Front bragg grating

i. EDFA amplifiers is suitable for

(i) Domestic applications (ii) Not suitable for commercial applications

(iii) Commercial applications (iv) Suitable for amplifications

j. Optical switches are also called as

(i) Ordinary switches (ii) Telephonic switches

(iii) Commercial switches (iv) Photonic switches

PART – B: (Short Answer Questions) (2 x 5 = 10 Marks)

Q.2. Answer ***ALL*** questions

a. State any two functions of the optical fiber transmission link.

b. What is Intermodal Distortion?

c. Write short notes on fiber optic cables.

d. Enumerate some of the noise associated with photo detectors.

e. What are isolators?

PART – C: (Long Answer Questions) (6 x 5 = 30 Marks)

Answer ***ANY FIVE*** questions Marks

3. Discuss in detail about the evolution of fiber optic communication system. (6)
4. Explain in detail about Intermodal Dispersion. (6)
5. Describe in detail about methods for the production of optical fibers. (6)
6. Discuss about splices with suitable diagrams in detail. (6)
7. Discuss in detail about the typical photo detector characteristics. (6)
8. Explain in detail about Passive coupler components. (6)
9. Discuss in detail about electro optic switches. (6)
10. Explain about semiconductor optical amplifiers with neat sketch. (6)

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