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GIET UNIVERSITY, GUNUPUR – 765022
M. Sc (Third Semester) Examinations, December' 2020
PHOE306 – FIBER OPTICS AND OPTOELECTRONICS
(PHYSICS)

Time: 2 hrs

Maximum: 50 Marks

(The figures in the right hand margin indicate marks.)

- Q.1. Answer **ALL** the questions (2 x 10 = 20)
- What is a multimode fiber?
 - What is fiber bragg grating?
 - What is meant by Attenuation in fiber?
 - What is waveguide dispersion?
 - What are couplers?
 - What is meant by Splicing?
 - What is a photodetector noise?
 - How do you select the optical source materials?
 - What is V number? Explain the power flow in step index fiber.
 - What are the different types of losses in fiber?

PART – B (6 x 5 = 30 Marks)

- | <u>Answer ANY FIVE</u> questions | Marks |
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| 2. Describe the fiber structure in terms of mode and index. | (6) |
| 3. Explain the different methods of fabrication of optical fibers in detail. | (6) |
| 4. Explain the signal distortion in a Single mode fiber. Discuss the design optimization of single mode fibers. | (6) |
| 5. Explain the (i) Absorption Loss (ii) Scattering Loss (iii) Bending Loss and (iv) Material dispersion with a neat sketch. | (6) |
| 6. Explain about fiber optic connectors and its types. Discuss the different types of joint losses. | (6) |
| 7. Explain the different types of splices in detail with a neat sketch. Describe the couplers in detail. | (6) |
| 8. Explain the (i) Surface emitting LED and (ii) Edge emitting LED with a neat sketch. | (6) |
| 9. Explain the different types of fiber amplifiers in detail. | (6) |

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