**PH3**

**Hall Ticket Number:**

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| **III/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **January, 2024** | **Common to ME, EE, EI, CS, CE, IT & CB** | | |
| **Seventh Semester** | **Fiber Optics and Communications** | | |
| **Time:** Three Hours | | **Maximum:** 70 Marks | |
| ***Answer question 1 compulsory.*** | | | **(14X1 = 14Marks)** |
| ***Answer one question from each unit.*** | | | **(4X14=56 Marks)** |
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|  |  |  | CO | BL | M |
| 1 | a) | What is material dispersion | CO1 | L1 | 1M |
|  | b) | Define total internal reflection | CO1 | L1 | 1M |
|  | c) | What is information capacity | CO1 | L1 | 1M |
|  | d) | Differentiate macro and micro bending of fibers | CO1 | L1 | 1M |
|  | e) | Write different lensing schemes | CO2 | L1 | 1M |
|  | f) | What is numerical aperture | CO2 | L1 | 1M |
|  | g) | What is non imaging microsphere | CO2 | L1 | 1M |
|  | h) | What is splicing | CO2 | L1 | 1M |
|  | i) | Mention the names of different types of mechanical misalignments | CO3 | L1 | 1M |
|  | j) | What is the link power budget analysis | CO3 | L1 | 1M |
|  | k) | What is a LAN | CO3 | L1 | 1M |
|  | l) | How the OTDR technic is useful for fault location | CO4 | L1 | 1M |
|  | m) | What is the principle of Insertion loss | CO4 | L1 | 1M |
|  | n) | . what is time domain dispersion measurement | CO4 | L1 | 1M |
| **Unit-I** | | | | | |
| 2 | a) | Explain the types of optical fibers | CO1 | L2 | 7M |
|  | b) | Describe the inter modal waveguides | CO1 | L2 | 7M |
| **(OR)** | | | | | |
| 3 |  | Explain different types of attenuation mechanisms in optical fiber communication | CO1 | L3 | 14M |
| **Unit-II** | | | | | |
| 4 | a) | Explain light source out put patterns | CO2 | L4 | 7M |
|  | b) | Discuss power launching mechanism into step-index fibers. | CO2 | L2 | 7M |
| **(OR)** | | | | | |
| 5 |  | What are the principal requirements of good connector? Explain different types fiber joints with neat diagrams. | CO2 | L2 | 14M |
| **Unit-III** | | | | | |
| 6 |  | Explain rise time budget with neat diagram | CO3 | L2 | 14M |
| **(OR)** | | | | | |
| 7 | a) | What is WDM? explain the principle ,working and advantages of WDM | CO3 | L2 | 9M |
|  | b) | Explain star coupler | CO3 | L2 | 5M |
| **Unit-IV** | | | | | |
| 8 | a) | Discuss the merits and demerits of cut back method | CO4 | L2 | 7M |
|  | b) | How the dispersion is measured through frequency domain method | CO4 | L2 | 7M |
| **(OR)** | | | | | |
| 9 |  | What is OTDR? Explain how OTDR create a trace and mention its applications | CO4 | L2 | 14M |

