Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_

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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec - 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **09EI203/12EI247** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **FIBER OPTICS AND LASER INSTRUMENTATION** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | The critical angleof opticfiber should be \_\_\_\_\_\_\_. | (1) |
| 2. | A technique that is used to minimize the pulse dispersion effect is to \_\_\_\_\_\_\_. | (1) |
| 3. | What is the special feature of fiber optic sensors? | (1) |
| 4. | What is the use of fiber optic gyroscope? | (1) |
| 5. | List the properties of laser. | (1) |
| 6. | The preferred Pumping source for solid lasers is:       (a) optical pumping        (b) electrical pumping  (c) chemical pumping   (d) X-Ray pumping | (1) |
| 7. | What are industrial lasers? | (1) |
| 8. | What are the types of laser welding? | (1) |
| 9. | What are the different laser interaction with tissues? | (1) |
| 10. | List two application of holography in medical field. | (1) |

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| **PART B(5 X 3= 15 MARKS)** | | |
| 11 | What is the principle used in the working of fibers as light guides? | (3) |
| 12 | What are active and passive Sensors? | (3) |
| 13 | Write short not on Q-Switching? | (3) |
| 14 | What are the advantages of laser heating? | (3) |
| 15 | Distinguish between a hologram and photographic film. | (3) |

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| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. |  | Explain in detail the different types of fibers and their properties with necessary diagrams. | (15) |
| (OR) | | | |
| 17. |  | Enumerate and explain the requirements for an optical sourcein fiber optic communication and also explain the construction and working with relevant diagrams. | (15) |
| 18. |  | Describe in detail the fiber optic instrumentation system for the measurement of strain and pressure. | (15) |
| (OR) | | | |
| 19. |  | With relevant diagrams, explain the principle of fiber optic sensors used for measurement of level, temperature. | (15) |
| 20. |  | Describe the characteristics of lasers. With help of diagrams explain the principle of three level and four level Lasers. | (15) |
| (OR) | | | |
| 21. |  | What are the types of lasers and explain the working principle of Gas Lasers. | (15) |
| 22. |  | Explain the principle of laser for the measurement of distance and velocity with neat diagrams. | (15) |
| (OR) | | | |
| 23. |  | Explain the principle of laser for the measurement of Atmospheric effect with neat diagrams. | (15) |
| 24. |  | What is meant by holography? Explain in detail the principles of holography for non-destructive testing. | (15) |
| (OR) | | | |
| 25. |  | What is endoscopes? Describe any one of the endoscope along with its application. | (15) |

ALL THE BEST