

Code No: R05321003

R05**Set No. 2**

III B.Tech II Semester Examinations, December 2010
OPTOELECTRONIC AND LASER INSTRUMENTATION
Electronics And Instrumentation Engineering

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Discuss about the different noise mechanisms that limit the frequency response of a photo diode.
 (b) A PIN photo diode has a transit time of 2 n sec and junction capacitance of 3_{PF} . If the load resistor is 50 ohm, find the band width of the diode limited by transit time. [8+8]
2. Discuss about Laser doppler velocity meter. [16]
3. (a) Draw and explain the working of pressure sensor based on optical reflection.
 (b) Write in detail about the optical sensors that work on principle of variation of Refractive index. [8+8]
4. (a) What is deionizer? How is it useful for the treatment of city water?
 (b) What is acetate and bicarbonate dialysis? Discuss about the advantages and disadvantages. [8+8]
5. Discuss about advantages and disadvantages of lasers in medical applications. [16]
6. (a) Explain the conditions on the refractive indices of core and cladding in an optical fiber for light guidance.
 (b) Classify optical fibers based on their refractive index profiles.
 (c) Explain how a light ray suffers total internal reflection. [6+4+6]
7. (a) What is meant by active material in laser.
 (b) Write the uses of laser beams in Engineering workshops.
 (c) Write with suitable diagrams the properties of a laser beam. [2+6+8]
8. (a) How does avalanche photo detector differ from a PIN photo detector?
 (b) What is multiplication factor and list the parameters on which multiplication factor of an APD depends.
 (c) With the assistance of a graph, explain the relationship between wavelength, responsivity, and quantum efficiency in a photo detector. [6+4+6]

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R05**Set No. 4**

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OPTOELECTRONIC AND LASER INSTRUMENTATION
Electronics And Instrumentation Engineering

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7. Discuss about advantages and disadvantages of lasers in medical applications. [16]
8. (a) What is deionizer? How is it useful for the treatment of city water?
 (b) What is acetate and bicarbonate dialysis? Discuss about the advantages and disadvantages. [8+8]

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R05**Set No. 1**

III B.Tech II Semester Examinations, December 2010
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Electronics And Instrumentation Engineering

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 (b) Write the uses of laser beams in Engineering workshops.
 (c) Write with suitable diagrams the properties of a laser beam. [2+6+8]

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R05**Set No. 3**

III B.Tech II Semester Examinations, December 2010
OPTOELECTRONIC AND LASER INSTRUMENTATION
Electronics And Instrumentation Engineering

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