

Code No: 07A61102

**R07****Set No. 2**

III B.Tech II Semester Examinations, December 2010  
**LASERS AND FIBER OPTICS IN MEDICINE**  
Bio-Medical Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
All Questions carry equal marks

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1. (a) Explain the procedural usage of laser for Diabetic Retinopathy.  
(b) Explain the laser usage for glaucoma in ophthalmic applications. [8+8]
2. Explain the uses of laser and fiber optics in applications of surgery. [16]
3. (a) What do you mean by laser hazard? [6+10]  
(b) Explain in detail different protection standards adopted during the treatment of laser?
4. Short notes on : [4+4+4+4]
  - (a) Epidermal tumors
  - (b) Vascular lesions
  - (c) Pigmented lesions
  - (d) Infrared thermography
5. (a) Discuss on the location of each fiber in the bundle of fiber for transmission of image with correct information.  
(b) Justify the transmission possibility of image and light with incoherent bundles. [8+8]
6. (a) Explain the difference between soft tissue and hard tissue of teeth. [8+8]  
(b) Explain different types of lasers used for the treatment of soft dental tissue.
7. (a) What are the various types of gas lasers. Explain any one type and its applications. [8+8]  
(b) What are the various types of ion lasers explain the construction features of any one type.
8. Explain the use of argon laser in Gastric bleeding homeostasis? [16]

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**R07**

**Set No. 4**

**III B.Tech II Semester Examinations, December 2010**  
**LASERS AND FIBER OPTICS IN MEDICINE**  
**Bio-Medical Engineering**

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) What are laser photo coagulators and explain their function. [8+8]  
(b) List out the various causes for corneal ulcers.
2. Explain the various safety regulations during the applications of laser. [16]
3. When fiber optics is used in endoscopes how the image is transmitted back. Explain in detail. [16]
4. Give a brief description of laser surgical application in  
(a) Gynecology  
(b) Otorhinolaryngology. [8+8]
5. (a) Describe photodynamic diagnosis (PDD) and photodynamic therapy (PDT) relate to the application of biological tissue. [8+8]  
(b) Define photosensitiser, How it can be related to visible light derived from a laser.
6. Explain in detail about Bronchoscopy with a neat sketch? [16]
7. Describe in brief the importance of laser in dentistry. [16]
8. (a) Explain in detail why the dark skin takes less power than the light coloured skin for treating the diseases using laser. [8+8]  
(b) What are the protective measures to be taken for the surrounding region which can be exposed with laser.

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**R07****Set No. 1**

III B.Tech II Semester Examinations, December 2010  
**LASERS AND FIBER OPTICS IN MEDICINE**  
Bio-Medical Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
All Questions carry equal marks

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1. Explain the various applications in Dentistry using laser and fiber optics. [16]
2. Discuss on the various exposure limits for the safety of laser. [16]
3. (a) Explain the importance of optic fiber in the endoscopic applications.  
(b) Differentiate on how the light and image can be transmitted in the optical fiber. [8+8]
4. Describe the holographic laser technique used for treating eye diseases. [16]
5. Write short notes on:
  - (a) Port wine lesion
  - (b) Seborrheic keratosis
  - (c) Senile-frackle. [5+5+6]
6. (a) Explain the use of Argon Laser in Gastroenterology?  
(b) Explain in detail the use of Nd-YAG laser? [8+8]
7. Explain the various precautions to take care during the exposure of laser to the eyes while surgery. [16]
8. (a) Explain the properties of the Argon laser with the help of energy level diagram.  
(b) Brief on the biomedical Applications of Argon laser. [10+6]

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**R07****Set No. 3**

III B.Tech II Semester Examinations, December 2010  
**LASERS AND FIBER OPTICS IN MEDICINE**  
Bio-Medical Engineering

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
All Questions carry equal marks

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1. (a) Explain the process involved in the interaction of electromagnetic radiation with tissue. [8+8]  
(b) Describe the various components of the LASER.
2. (a) Give a detailed description of Gastro scopes?  
(b) What are the uses of endoscopes in medicine? [8+8]
3. (a) Explain the operating principle of the different lasers used in Ophthalmology. [8+8]  
(b) Explain how corneal ulcers are treated using lasers.
4. (a) Discuss about thermal hazard occur during laser treatment? [8+8]  
(b) Explain in detail safety regulations to adopt during laser treatment?
5. Write the brief notes on the following: [8+8]  
(a) Lasers in Endodontics  
(b) Laser treatment of filling materials.
6. (a) Explain the merits and demerits of coherent and incoherent fiber bundles [8+8]  
(b) Define snell's Law and explain how it is applicable to optical fibers.
7. Discuss on tatoos and how it can be eliminated using laser. Which type of laser is most suitable justify. [16]
8. Justify when laser is used in surgery and its advantages over other types of surgery. [16]

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