

Code No: 07A61102

R07

Set No. 2

**III B.Tech II Semester Examinations, APRIL 2011
LASERS AND FIBER OPTICS IN MEDICINE
Bio-Medical Engineering**

Time: 3 hours

Max Marks: 80

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

1. (a) Explain the different types of the fiber bundles. [8+8]
(b) Describe the process of the image transmission using fiber bundles
2. What is the use of colonoscopy in Gastro-Intestinal Endoscopy. [16]
3. (a) Explain the uses of fiber optics in surgery. [8+8]
(b) Discuss cutting, coagulation, fulguration and dessication in the field of surgery. With neat sketch for each.
4. (a) List all the properties of lasers and explain in detail. [8+8]
(b) Explain the principle of operation of ruby laser.
5. Differentiate between the soft and hard tissue in teeth and how the laser can be applied and write its precautions. [16]
6. Describe the protective measures to be followed while using laser in medicine? [16]
7. (a) Explain in detail the Argon & Nd-YAG laser used in ophthalmology with suitable examples for each. [8+8]
(b) What is corneal ulcer. Describe the procedure involved to cure the above disease with a best suitable type of laser.
8. (a) Which laser is used to treat cutaneous vascular lesions and how is it done? [8+8]
(b) Explain how warts are treated with laser.

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**Answer any FIVE Questions
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1. (a) Explain on the refractive corrections and its importance in ophthalmology.
(b) With the suitable diagram explain the parts of the eye. [8+8]
2. Explain the various applications in Dentistry using laser and fiber optics. [16]
3. (a) Discuss various types of lasers used in Dermatology with suitable examples for each. [8+8]
(b) Brief various types of diseases that can be treated with laser and fiber optics.
4. Give a brief description of laser surgical application in
(a) Orthopedics
(b) Urology. [8+8]
5. (a) Discuss photosynthesis and photomorphosis. [8+8]
(b) List the different types of lasers. List applications for each one of them.
6. (a) Explain the construction of fiberscope and its applications. [8+8]
(b) Describe the overview of borescope
7. (a) What are the steps to be taken for safety precautions in the use of Argon Laser ophthalmic photo coagulator? [8+8]
(b) Give safe operating procedure for Nd-YAG Laser Ophthalmic photo disruptor?
8. Explain the use of argon laser in Gastric bleeding homeostasis? [16]

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Set No. 1

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**Answer any FIVE Questions
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1. Discuss on the various applications of Density and how it can be treated using laser. [16]
2. (a) Explain the process involved in the interaction of electromagnetic radiation with tissue. [8+8]
(b) Describe the various components of the LASER.
3. Discuss on the various forms of laser power is used in the procedure of surgery. [16]
4. Explain in detail the different hazards occur during laser treatment with respect to Skin? [16]
5. (a) Discuss the various complications involved in laser surgery. [8+8]
(b) Explain how the pigment of skin is related to the laser treatment.
6. Explain the various types of ophthalmic disorders which can be treated using laser justify. [16]
7. Describe any one of the therapeutic instruments used in endoscope? [16]
8. (a) Justify the applications of optical fiber in endoscopes for teaching.
(b) Justify the view port at the distal and proximal end. [8+8]

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Set No. 3

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Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
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1. (a) Explain the importance of optic fiber in the endoscopic applications.
(b) Differentiate on how the light and image can transmitted in the optical fiber. [8+8]
2. What is bronchoscope, discuss it application for pediatric use. [16]
3. Write short notes on: [4+4+4+4]
 - (a) Directionality
 - (b) Monochromacity
 - (c) Coherence
 - (d) Divergence
4. Give a brief description of laser surgical application in
 - (a) Gynecology
 - (b) Otorhinolaryngology. [8+8]
5. Give a description about safe operating procedure for the CO₂ laser? [16]
6. Discuss on tooth decay and its protective measures using the laser. [16]
7. (a) Explain the principle involved in the removal of tatoos using laser. [8+8]
(b) What is senile-frackle. How it can be eliminated using laser.
8. (a) Discuss the procedure used in performing cataract surgery. which type of laser is used Explain [8+8]
(b) Define refractive errors in ophthalmology and Explain the procedure to correct it using laser. Which type of laser is preffered and why.
