

**B. Tech. Sem – VIII (Biomedical Engg.) (2014 COURSE) (CBCS) :
SUMMER - 2019**

SUBJECT: ELECTIVE-IV: LASERS AND OPTICAL FIBERS IN MEDICINE

Day : Thursday
Date : 30/05/2019

Time : 02.30 PM TO 05.30 PM
Max. Marks: **60**

S-2019-2941

N. B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

Q.1 Describe in detail working of any laser used in medical surgery. **(10)**

OR

Q.1 Explain the following terms related to laser physics.
a) Gaussian Beam with beam divergence **(05)**
b) Beam Focusing **(05)**

Q.2 a) Discuss in detail thermal and non-thermal interaction between laser beams and materials. **(05)**
b) Write a short notes on reflection and absorption in lasers. **(05)**

OR

Q.2 a) Explain the laser assisted diagnosis. **(05)**
b) Describe the concept of tissue luminescence. **(05)**

Q.3 Describe the attenuation properties of optical fibers in detail with neat sketch. **(10)**

OR

Q.3 Discuss the differences in optical fibers used for ultraviolet(UV) light, visible light and infra-red (IR) light. **(10)**

Q.4 Explain the concept of fiberscope and endoscope. **(10)**

OR

Q.4 Describe the fabrication process of ordered and non-ordered bundles. **(10)**

Q.5 Describe typical construction of Distal end of the endoscope. **(10)**

OR

Q.5 Discuss different endoscopic therapies in detail. **(10)**

Q.6 Describe flow diagram for laser angioplasty. **(10)**

OR

Q.6 Explain the fiber optic laser system in gastroenterology. **(10)**

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