

No. of Printed Pages : 03

Roll No.

F-53

B. Tech. EXAMINATION, May 2017

(Sixth Semester)

(B. Scheme) (Main & Re-appear)

BME

BME-306-B

FIBER OPTICS AND LASERS IN MEDICINE

Time : 3 Hours]

[Maximum Marks : 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

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P.T.O.

Unit I

1. (a) State and explain Snell's law in detail. 7
(b) Discuss main advantages and disadvantages of Optical Fiber Communication. 8
2. Explain in detail through diagrams, different types of fibers. Also discuss different types of losses in Optical Fiber. 15

Unit II

3. Explain in detail the construction and operation of the following : 8+7
(a) PIN photodiode
(b) Avalanche Photodiode.
4. (a) Discuss in brief various digital modulation techniques in optical communication. 8
(b) Explain in detail the construction and operation of Laser Diode. 7

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Unit III

5. Explain in detail the construction, operation and applications of the following :
(a) Ruby Laser 8
(b) CO₂ Laser. 7
6. Explain different types of laser tissue interactions. Also discuss thermal diffusion fibers and contact tips. 15

Unit IV

7. Explain brief major applications of Laser in Medical Therapy. 15
8. Write detailed notes on the following : 8+7
(a) Endoscopy
(b) Laproscopy.

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