Seat No: _____

GANPAT UNIVERSITY
B.TECH SEM. VII BIOMEDICAL & INSTRUMENTATION ENGINEERING
CBCS REGULAR EXAMINATION DECEMBER 2013
2BM704: LASER & FIBER OPTICS IN MEDICINE

TIME: - 3 HOURS **TOTAL MARKS: - 70**

INSTRUCTION: - 1. Write the answer of each section in separate answer sheet.
2. Figure to the right indicates full marks.
3. Assume suitable data if necessary.

SECTION-I

Que-1 **12**

(a) Give classification of fiber w.r.t. their material & also state their merits and demerits
(b) What are different dispersion mechanisms? Explain any one.

OR

Que-1 **12**

(a) Explain attenuation in fiber optics.
(b) Give classification of fiber based chemical sensor.

Que-2 **11**

(a) Explain vidicon and CCD type multichannel detectors
(b) Explain different sensing principles of intrinsic FOCS briefly.

OR

Que-2 **11**

(a) Explain of APD and PIN type of detectors.
(b) P^H measurement using Fiber based chemical sensor.

Que-3 **12**

(a) How to determine supported modes of fiber?
(b) Explain Photomultiplier tube.
(c) Packaging of LEDs.

SECTION-II

Que-4 **12**

(a) Explain Ruby Laser with neat diagram.
(b) Explain Semiconductor Laser

OR

Que-4 **12**

(a) Explain Dye laser.
(b) Explain excimer laser

Que-5 **11**

(a) Explain Photothermal effect of Laser on tissue.
(b) Explain Photodisruption effect of Laser on tissue.

OR

Que-5 **11**

(a) Explicit & Implicit Dosimetry for PDT
(b) How the laser gets different properties explain.

Que-6 **12**

(a) Explain functional difference between Solid State laser and Gas laser.
(b) Why N_2 and He gas required in CO_2 Laser?
(c) Explain different classes for Laser hazard.

END OF PAPER