Roll No. …..…….. **Total Pages: 03**

8681/MH

BS-2057

LASERS-II

(Semester-IV)

Time Allowed : 3 Hours] [Maximum Marks : 30

Note : The candidates are required to attempt **two** questions each from Sections A and B carrying 5 marks each and any **five** from Section C consisting of 7 short answers type questions carrying 2 marks each.

SECTION-A

1. Discuss various types of pumping mechanisms.

2. Define broadening of spectral lines. Discuss natural broadening.

3. What are Einstein's coefficients? Derive expression for them.

4. Explain why high frequency LASERS are more difficult to build and operate?

SECTION—B

5. Describe construction and working of Ruby LASER.

6. What is Q switching? Explain. -

7. Discuss Dye LASER.

8. Briefly discuss Nd-YAG LASER.

SECTION—C

9. Attempt any **five** parts :

   (a) Do you think "energy conservation is violated in a LASER?

   (b) Can we obtain light amplification in absence of stimulated emission?

(c) What is Threshold condition?

(d) What is active medium?

(e) What is mode locking?

(f) What is spiking on Ruby LASER?

(g) A LASER has a band width of 3000 Hz
Calculate the coherence time.