

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.
(For candidates admitted during the academic year 2015 – 2016)

SUBJECT CODE:15PH/ME/LP55

B.Sc. DEGREE EXAMINATION NOVEMBER 2017
BRANCH III - PHYSICS
FIFTH SEMESTER

COURSE : MAJOR – ELECTIVE
PAPER : LASER PHYSICS
TIME : 3 HOURS

MAX. MARKS : 100

SECTION - A

ANSWER ALL QUESTIONS: (10x3=30)

1. Define Emission and absorption.
2. What are Einstein Coefficients?
3. Mention two important characteristics of Laser.
4. What is temporal and spatial coherence.
5. Define Gas Laser.
6. What are chemical Laser.
7. Define Holography.
8. Define semiconductor Laser.
9. What is Isotope?
10. What are bar code scans?

SECTION – B

ANSWER ANY FIVE QUESTIONS: (5x5=25)

11. Write note on population Inversion?
12. Explain basic components of Laser.
13. Explain solid state Laser.
14. Explain four level Laser.
15. Discuss CO₂Laser.
16. Mention advantage of Laser Diodes.
17. How are Lasers used in medicine?

SECTION – C

ANSWER ANY THREE QUESTIONS: (3x15=45)

18. Obtain Einstein coefficients A and B and relate between them.
19. Discuss GAS Laser system.
20. Explain working of liquid Laser with energy level diagram.
21. How are Recording and Reconstruction of image done using Holography.
22. Explain Industrial applications of Laser such as
 - a) (i) Drilling (ii) Cutting (iii) Welding (iv) Laser printing
 - b) Write note on optical computer.
