B.Sc I Semester (NEP) Degree Examination, March/April - 2022
PHYSICS
Paper No. OEC1 - Optical Physics

Time : 3 Hours   Maximum Marks : 60

Instruction : *Write the answer to section - A in the first two pages only.*

SECTION - A

Answer the following.   **10x1=10**

1. Define refraction of light.

2. What is meant by reflection ?

3. Define Interference of light.

4. What is meant by Coherence ?

5. Define diffraction of light.

6. Define Zone plate.

7. What is meant by polarization of light ?

8. State Brewster's law.

9. What is the acronym for the word LASER ?

10. What is population inversion ?

SECTION - B

Answer **any four** of the following.   **4x5=20**

11. Write a short note on Total Internal reflection.

12. Derive an expression for fringe width in an interference pattern.

13. Write a note on resolving power of a grating.

14. Describe the production of plane polarized light by reflection.

15. Define pumping. Write the different types of pumping.

16. Explain with neat diagram absorption, spontaneous emission and stimulated emission.

SECTION - C

Answer **any three** of the following. **3x10=30**

17. (a) Mention the wave characteristics of light. **5+5**
    (b) Derive mathematical equation of plane wave.

18. With neat diagram explain Fresnel biprism.

19. Give the necessary theory of Fraunhofer diffraction at double-slit experiment.

20. Explain Huygen's theory of double refraction.

21. With neat diagram explain the construction and working of Ruby Laser.

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