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NS3S-1108-A-23
B.Sc. III Semester (NEP) Degree Examination
PHYSICS
Wave Motion and Optics
Paper : DSC A3

Time : 2 Hours **Maximum Marks : 60**

Instructions to Candidates:

1) Answer **All** the questions.
2) Draw diagram wherever necessary.

SECTION-A

I. Answer any Five of the following. **(5×2=10)**

1. What are ripple wave?
2. What is meant by beats? Mention any two application of beats.
3. Define time of Reverberation.
4. State Huygen's principle.
5. What is meant by Fresnel's Biprism.
6. Define dispersive power of a grating.
7. State Malu's law.

SECTION-B

II. Answer any Four of the following. **(4×5=20)**

8. Derive the equation for a progressive wave.
9. Obtain an expression for the velocity of transverse waves along a stretched string.
10. Obtain the expression for fringe width in young's double slit experiment.
11. Describe the Michelson interferometer with a neat diagram.
12. Distinguish between interference and diffraction.
13. Explain the construction of Fresnel's Half period zones for plane wave.

Fresnel's Half Period

SECTION-C

III. Answer any Three of the following. **(3×10=30)**

14. a) Give the analytical method for the superposition of two collinear Oscillations having equal frequencies. **(6)**

    b) Write a note on ripple and gravity wave. **(4)**

15. a) Give the theory of Helmhotz resonator. **(5)**

    b) Derive Sabine's Reverberation formula. **(5)**

16. What are Newton's rings? Give the theory of Newton's rings by reflected light. **(10)**

17. a) Describe Fraunhoffer diffraction at a single slit. **(5)**

    b) What is polarization? Explain polarization by reflection. **(5)**

18. a) Explain construction of wave front. **(5)**

    b) Explain Maxwell's electromagnetic waves. **(5)**
