A (Printed Pages 4)

(20222) Roll No. .....

B.Sc.(Com.Sci.)-I Sem.

NP-3574(CV-III)

B.Sc. (Computer Science)

Examination, Dec.-2021

Applied Physics

(BCS-103)

Time : 1½ Hours] *[Maximum Marks : 75*

Note : Attempt questions from **all** Sections as per instructions.

Section-A

(Very Short Answer Questions)

Note : Answer any **two** questions. Each question carries 7.5 marks. Very short answer is required not exceeding 75 words. 2×7.5=15

1. What are coherent sources.

2. Name different types of moving coil and moving iron instruments.
3. A coil of self induction 50 henry is connected to the terminals of a battery of e.m.f 2 volts through a resistance of 10 ohm. What is the time constant of the circuit?
4. What are massless particles?
5. What is the time constant of the circuit?

Section-B

(Short Answer Questions)

Note : Answer any **one** question out of the following three questions. Each question carries 15 marks. Short answer is required not exceeding 200 words. 1×15=15

6. Define time dilation and derive the formula for time dilation.

7. Define 'dispersive power of a grating and obtain an expression for it.

8. In an L-R circuit the current attains one third of its final steady value is 5 sec. What is the time-constant of the circuit?

Section-C

(Detailed Answer Questions)

Note : Answer any **two** questions out of the following five questions. Each question carries 22.5 marks. Answer is required in detail. 2×22.5=45

9. Write basic postulates of special theory of relativity and deduce the Lorentz transformation from the postulates.

10. State and prove maximum power transfer theorem.

11. State and prove Norton's theorem. How is Norton's equivalent circuit related with the thevenin's equivalent circuit? In what type of circuit the use of Norton's theorem is preferred.

12. Discuss the phenomenon of interference of light due to thin films and find the conditions of maxima and minima.

13. Explain the phenomenon of diffraction of light. Explain the difference between Fresnel and Fraunhofer class of diffraction phenomenon and Distinguish clearly between interference and diffraction of light.