3/10/13.

Roll No. | | | | | | | | | | |

B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2013

Common to ALL Branches

First Semester

PH171 PHYSICS-I / PH9111 ENGINEERING PHYSICS

(Regulations 2004 / 2008)

Time: 3 Hours | Answer ALL Questions | Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Define Poisson's ratio.
2. What are the advantages of I-shaped girders?
3. State Weber-Fechner law.
4. The Young's modulus is 7.9×10^{10} N and density is 2650kg/m^3 for quartz. Calculate the velocity of sound in quartz.
5. What is known as thermal stress?
6. What is the principle of refrigerator?
7. Mention two uses of anti-reflection coatings.
8. What are the different indexed optical fibers?
9. Distinguish between ionic bond and covalent bond in solids.
10. Estimate the inter-planar distance between (111) planes of a cubic crystal of lattice parameter 0.40 nm.

Part – B (5 x 16 = 80 marks)

11. Derive an expression for the depression of a cantilever fixed at one end and loaded at the other end. Hence use it to obtain the depression of a beam under non-uniform bending due to a load at the centre of the beam. (12+4)

12. a) Discuss the theory of growth and decay of sound intensity in a hall and hence derive an expression for the reverberation time in the hall. (16)

(OR)

b) (i) Explain the construction and working of a magnetostriction oscillator for the production of ultrasonic waves. Mention its merits and demerits. (10+2)
(ii) List the properties of ultrasonic waves. (4)

13. a) (i) Discuss the theory and experimental procedure of finding the thermal conductivity of a poor thermal conductor by Lees' disc method. (12)
(ii) Outline the method of providing thermal insulation in buildings. (4)

(OR)

b) (i) Discuss with necessary diagrams, the various strokes of an Otto engine, and hence obtain an expression for the efficiency of it. (12)
(ii) Discuss the Temperature-Entropy variation of the Carnot cycle. (4)

14. (a) Explain in detail the preparation, properties and the applications of metallic glasses.

(OR)

(b) Discuss in detail the preparation, properties and the applications of shape memory alloys.

15. (a) Explain in detail the earth quakes and explain the principle and working of a seismograph.

(OR)

(b) Explain in detail about the cyclone and flood hazards.

23/10/13

B.E / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, NOV / DEC 2013

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PART-A (10 x 2 = 20 Marks)

CORRECTION TO BE ANNOUNCED:

The existing following question

4. The Young's modulus is 7.9x1010N and density is 2650kg/m3 for quartz. Calculate the velocity of sound in quartz.

Should be read as

4. The Young's modulus is 7.9×10^{10}N and density is 2650kg/m^3 for quartz. Calculate the velocity of sound in quartz.

20/9/13

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Dr. [illegible] Sai
Hem