Reg. No. : | | | | | | | | | | |

Question Paper Code: 31013

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

First Semester

Civil Engineering

01UPH103 - ENGINEERING PHYSICS

(Common to ALL Branches)

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is SONAR? Mention two applications of it.
2. List four methods of detecting ultrasonic waves.
3. What are the different methods of achieving population inversion?
4. Define optical pumping.
5. What is splicing? Mention its types.
6. What is meant by splicing in fiber optics?
7. What is Compton effect? Write an expression for the Compton wavelength.
8. What is meant by degenerate and non-degenerate states?
9. Name the seven crystal systems.
10. What are Frenkel and Schottky imperfections?

PART - B (5 x 16 = 80 Marks)

11. (a) Describe the construction and working of piezo electric generator. (16)

Or

(b) Describe the method of determining the velocity of ultrasonic waves using acoustic grating. (16)

12. (a) With a neat sketch explain the principle, construction and working of CO_2 laser. (16)

Or

(b) Describe the construction and reconstruction methods of a hologram. (16)

13. (a) With neat diagram, explain the principle and propagation of light in an optical fiber. (16)

Or

(b) Explain the working of fiber optic communication system with a neat block diagram. (16)

14. (a) Derive Planck's law of black body radiation. (16)

Or

(b) With a neat sketch explain the construction and working of scanning electron microscope. (16)

15. (a) Deduce the atomic packing factor of FCC crystal with neat diagram. (16)

Or

(b) Derive an expression for the interplanar spacing for (h k l) planes of a cubic structure. (16)

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