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**Question Paper Code: 31003**

B.E. / B.Tech. DEGREE EXAMINATION, AUGUST 2021

First Semester

Civil Engineering

01UPH103 - ENGINEERING PHYSICS

(Common to ALL Branches)

(Regulation 2013)

Duration: 1:45 hour

Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

**(Answer any ten of the following questions)**

1. Mention any two merits and demerits of Piezo electric oscillator.
2. How depth of the sea can be measured using ultrasonic waves?
3. What do you mean by population inversion?
4. Define optical pumping.
5. What is splicing? Mention its types.
6. Distinguish between an active and passive sensor.
7. State Planck's hypothesis on black body radiation.
8. What is meant by degenerate and non-degenerate states?
9. Define space lattice and lattice points.
10. Mention any two differences between edge and screw dislocation.
11. What is meant by splicing in fiber optics?
12. What is Compton effect? Write an expression for the Compton wavelength.
13. What is meant by degenerate and non-degenerate states?
14. Name the seven crystal systems.

15. What are Frenkel and Schottky imperfections?

PART – B (3 x 10= 30 Marks)

**(Answer any three of the following questions)**

16. What is inverse piezoelectric effect? Describe the construction and working of a piezoelectric generator to produce ultrasonic sound waves (10)
17. Describe the construction and working of Nd-YAG laser with neat energy level diagram. (10)
18. Explain the double crucible technique of fibre drawing. (10)
19. Derive an expression for Schrodinger time independent wave equation. (10)
20. Deduce the atomic packing factor of FCC crystal with neat diagram. (10)