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

Question Paper Code: 31003

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

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. Mention any two merits and demerits of Piezo electric oscillator.
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. State Planck's hypothesis on black body radiation.
8. What is meant by degenerate and non-degenerate states?
9. Name the seven crystal systems.
10. Mention any two differences between edge and screw dislocation.

PART - B (5 x 16 = 80 Marks)

11. (a) What is inverse piezoelectric effect? Describe the construction and working of a piezoelectric generator to produce ultrasonic sound waves. (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 working of Nd-YAG laser with neat energy level diagram. (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) Explain the construction and working of transmission electron microscope. Give its merits and demerits . (16)

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

Or

(b) Explain the crystal defects in detail. (16)

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