Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code: 51003

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

First Semester

Civil Engineering

01UPH103 - ENGINEERING PHYSICS

(Common to ALL Branches)

(Regulation 2013)

Duration: One hour   Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. _____ crystal is used to produce longitudinal ultrasonic waves

   (a) *X*-cut   (b) *Y*-cut   (c) *Z*-cut   (d) *XY*-cut

2. _____ is use to measure the depth of sea directly

   (a) Echo meter   (b SONAR   (c) both a and b   (d) Laser

3. The rate of stimulated emission is equal to_____

   (a) $R_{21}(ST) = B_{21}N_1N_2$ (b) $R_{21}(ST) = B_{21}\rho\gamma N_1$ (c)
   $R_{21}(ST) = B_{21}\rho\gamma N_2$ (d) none of these

4. The principle of semi conductor laser is

   (a) Forward biased   (b) Reverse biased
   (c) Energy of photons   (d) None of these

5. The principle of propagation of light through optical fibre is
   (a) Total Internal Reflection   (b) Refraction
   (c) Diffraction   (d) Reflection

6. In an optical fibre, the inner core is _____ the cladding

   (a) denser than   (b) less denser than
   (c) the same density as   (d) 2 times denser than

7. In Compton scattering, at what angle of scattering, the wavelength of the scattered photon will be maximum

    (a) 0^0 (b) 90^0 (c) 180^0 (d) 120^0

8. In electron microscope the focussing effect is due to

    (a) Lens   (b) Electromagnetic field

    (c) Prism   (d) Aperture

9. Which of the following has simple cubic structure?

    (a) Copper   (b) Aluminium   (c) Magnesium   (d) Polonium

10. The primitives are equal and interfacial angles are equal to 90^0 is called

    (a) Cubic   (b) mono clinic   (c) Tri clinic   (d) hexagonal

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. What is inverse piezoelectric effect? Describe the construction and working of a piezoelectric generator to produce ultrasonic sound waves   (8)

12. Describe the construction and working of Nd-YAG laser with neat energy level diagram.   (8)

13. Explain the double crucible technique of fibre drawing.   (8)

14. Derive an expression for Schrodinger time independent wave equation.   (8)

15. Deduce the atomic packing factor of FCC crystal with neat diagram.   (8)

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