Reg. No. :

Question Paper Code: 91003

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

First Semester

Civil Engineering

19UPH103- ENGINEERING PHYSICS

(Common to ALL branches)

(Regulation 2019)

Duration: 1:45 hour   Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

(Answer any ten of the following questions)

1. Calculate the Miller Indices of a plane which cuts the intercepts of 2, 3, 4 units   CO1- R
    along x, y and z axes respectively.

2. Define unit cell.   CO2- R

3. What is holography?
                                                                                         CO3- R

4. Mention any two physical significance of the wave function ψ.
                                                                                         CO4- R

5. State Hooke's law.   CO5- R

6. If λ_m is the wavelength corresponding to maximum energy and T is the   CO3- R
    absolute temperature, then according to Wien's displacement law,

7. According to Planck's hypothesis, the exchange of energy between the   CO3- R
    radiation and matter is not continuous but it is limited to the integral multiple of
    ?

8. If a particle having mass m is moving with velocity v, the deBroglie wavelength   CO3- R
    associated with the matter wave is

9. Define modulus of elasticity   CO4- R

10. Define ratio of lateral strain to linear strain   CO4- R

11 Define atomic packing factor. (R)   CO2- R

12 Mention the characteristics of laser. (U)   CO3- R

13   Calculate the de Broglie wave length of an electron moving with velocity   CO4- R
100 m/s.(Ap)

14   Write down the Max Planck's radiation formula in terms of frequency.(R)   CO5- R

15   Define modulus of elasticity   CO5- R

PART – B (3 x 10= 30 Marks)

(Answer any three of the following questions)

11.   Determine the c/a ratio and packing factor for an ideal HCP structure   CO1- U   (10)

12.   Describe the construction and working of CO_2 laser with a neat   CO2- U   (10)
diagram

13.   Show that the atomic packing factor for FCC is 74%.   CO1- U   (10)

14.   Deduce Schrodinger's time dependent and independent wave   CO3- U   (10)
equations.

15.   Derive an expression for Young's modulus of a uniform bending of   CO4- U   (10)
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