DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE
RAIGAD-402103
Mid semester Examination- March-2019

Branch: Group B (CSE, ECT, EEP,IT) **Sem.:- II**
Subject: Engineering Physics (BTBS202) **Marks:20**
Date: 12/03/2019 **Time:1 Hrs**

Instructions:-

1. *Do not write anything on question paper.*
2. *Neat and labeled diagram must be drawn wherever necessary.*
3. *Use of non- programmable calculator is allowed.*
4. *Figures to the right indicate full marks.*
5. *Assume suitable data if required.*

Q.1. Attempt following questions **(6 Marks)**

a) In dielectric, the polarization is **[CO1]**

i. linear function of applied field ii. Square function of applied field

iii. exponential function of applied field iv. Logarithmic function of applied field.

b) In free vibrations, the property that remains constant is **[CO1]**

i. Amplitude ii. Total energy iii. Both iv. None of above

c) The substances that rotate plane of polarization are said to be **[CO2]**

i. Optically active ii. Optically inactive iii. opaque iv. Polaroids.

d) Which of the following can be used to produce ultrasonic wave? **[CO1]**

i. Ni-rod ii. Co-rod iii. Fe-rod iv. All

e) In the structure of optical fibre cable, the refractive index of core is always..... than the refractive index of cladding. **[CO2]**

i. less than ii. Equal to iii. greater than iv. none of above.

f) The unit of dipole moment/unit volume is **[CO1]**

i. coulomb/meter ii. coulomb/meter^2 iii. coulomb/meter^3 iv. coulomb

Q. 2. Attempt any TWO of the following **(6 Marks)**

i) Discuss important applications of ultrasonic waves **[CO1]**

ii) Explain the structure of optical fiber and mechanism of light propagation in to the fiber. **[CO2]**

iii) In Newton's ring experiment, the diameter of the 15th ring was found to be 0.59cm and of the 5th ring was 0.336cm. If the radius of the plano-convex lens is 100cm, compute the wavelength of light used. **[CO2]**

Q.3. Attempt any ONE of the following **(8 Marks)**

i.) What is damped oscillation? Obtain a differential equation for damped vibration and find its solution. **[CO1]**

ii.)Explain the principle, construction and working of Ruby laser. **[CO2]**