

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

Branch: Group B (CSE, ECT, EEP, IT)
Subject: Engineering Physics (BTBS202)
Date: 12/03/2019

Sem:- II
Marks:20
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

a) In dielectric, the polarization is

(6 Marks)
[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]