

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE –**  
**RAIGAD -402 103**  
**Mid Semester Examination – October - 2017**

**Branch: Group A**

**Sem.:- I**

**Subject with Subject Code:- Engineering Physics (PHY 103)**

**Marks: 20**

**Date:- 04/10/2017**

**Time:- 1 Hr.**

- 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.No.1 Answer the following**

**(Marks)**  
**(06)**

- a) Oscillations become damped due to
- |                       |                    |
|-----------------------|--------------------|
| i) normal force       | ii) friction       |
| iii) tangential force | iv) parallel force |
- b) If an object moves back and forth repeatedly around a mean position it is called
- |                |               |
|----------------|---------------|
| i) oscillating | ii) revolving |
| iii) rotating  | iv) motion    |
- c) Maximum displacement from equilibrium position is
- |                 |               |
|-----------------|---------------|
| i) frequency    | ii) amplitude |
| iii) wavelength | iv) period    |
- d) Light waves are transverse in nature, can be demonstrated by observing the phenomenon of
- |                   |                  |
|-------------------|------------------|
| i) dispersion     | ii) interference |
| iii) polarisation | iv) diffraction  |
- e) A system in which population inversion is achieved is called
- |                       |                   |
|-----------------------|-------------------|
| i) parallel system    | ii) active system |
| iii) metastable state | iv) pumping       |



- f) Optical fibre works on the principle of
- |                                |                  |
|--------------------------------|------------------|
| i) photo-electric effect       | ii) laser effect |
| iii) total internal reflection | iv) refraction   |

**Q.No. 2 Attempt any one of the following:** (06)

- a) Explain the production of Ultrasonic wave with the help of Magnetostriction generator.
- b) Explain the construction and working of He-Ne Laser with neat diagram

**Q.No 3. Attempt any two of the following** (08)

- a) Distinguish between positive and negative crystal.
- b) Define Ultrasonic Wave. Give its engineering applications.
- c) The refractive index of core and cladding material of a step index fibre are 1.48 and 1.45 respectively. Calculate:
- |                       |                      |
|-----------------------|----------------------|
| i. Numerical aperture | ii. Acceptance angle |
|-----------------------|----------------------|

