

C14-A-103/C14-AA-103/C14-AEI-103/C14-BM-103/  
C14-C-103/C14-CH-103/C14-CHOT-103/C14-CHPC-103/  
C14-CHPP-103/C14-CHST-103/C14-CM-103/C14-EC-103/C14-EE-103/  
C14-IT-103/C14-M-103/C14-MET-103/C14-MNG-103/  
C14-PCT-103/C14-PET-103/C14-RAC-103/C14-TT- **103**

**4003**

**BOARD DIPLOMA EXAMINATION, (C-14)  
MARCH /APRIL-2019  
FIRST YEAR (COMMON) EXAMINATION  
ENGINEERING PHYSICS**

Time: 3 Hours

Max.Marks: 80

**PART-A**

**3x10=30M**

**Instructions:** 1) Answer **all** questions and Each question carries **three** marks  
2) Answer should be brief and straight to the point and shall not exceed five simple sentences.

- 1) Write any three advantages of SI units.
- 2) State triangle law of vectors with neat diagram.
- 3) A body is allowed to fall freely from a height of 2000m. Find the time taken by it to reach the ground( $g=10/\text{ms}^2$ ).
- 4) Define SHM and give two examples.
- 5) State boyle's law in gases .Express it's equation in terms of density.
- 6) Define reverberation time and state Sabine's formula for reverberation time.
- 7) Define surface tension and give two examples.
- 8) Define stress and strain.
- 9) State kirchoff's first and second Law of electricity.
- 10) State any three applications of photo electric effect.

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**PART-B**

**10x5=50M**

- Instructions:** 1) Answer any **FIVE** questions  
2) Each question carries **Ten** marks.  
3) The answer should be comprehensive and the criteria for valuation is the content but not the length of the answer

- 11) a) State parallelogram law of vectors. 2M  
b) Derive an expression for the magnitude and direction of their resultant vector. 5M  
c) If two forces of 30 N and 40 N act simultaneously on a particle inclined at  $60^\circ$  to each other, find the magnitude of the resultant. 3M
- 12) a) Show that the path of a projectile is a parabola in the case of horizontal projection. 6M  
b) A body is projected obliquely with an initial velocity of 10m/s at an angle  $30^\circ$  to the horizontal. Find the maximum height reached. 4M
- 13) a) Define Friction. 2M  
b) Derive the expression for acceleration of a body moving up on a smooth inclined plane with necessary diagram. 5M  
c) State any three methods of minimizing friction 3M
- 14) a) State and prove law of conservation of energy in the case of a freely falling body. 7M  
b) If 60 Kg m/s is the momentum of a body of mass 0.6kg, find its kinetic energy. 3M
- 15) a) Derive expression for time period of a simple pendulum. 7M  
b) A particle executing SHM has an acceleration of  $0.5 \text{ m/s}^2$  when the displacement is 2m. Find its time period. 3M
- 16) a) Distinguish between isothermal and adiabatic processes. 6M  
b) 1500 j of heat is given to a gas when its volume is increased by  $0.004 \text{ m}^3$  at a constant pressure of  $2 \times 10^5 \text{ Pa}$ . Calculate increase in the internal energy of the gas. 4M
- 17) a) Define beats. 2M  
b) Write any four effects of noise pollution. 4M  
c) Write any four methods of minimizing noise pollution. 4M
- 18) a) State Coloumb's inverse square law of magnetism. 3M  
b) Derive an expression for magnetic induction field strength at a point on the axial line of a short bar magnet. 7M

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