6036
BOARD DIPLOMA EXAMINATION
JUNE - 2019
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING
ENGINEERING PHYSICS
FIRST YEAR EXAMINATION

Time: 3 Hours   **Total Marks: 80**

PART - A   (3m x 10 = 30m)

Note 1:Answer all questions and each question carries 3 marks

2:Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Define dimensional constants? Give two examples

2. A body is thrown with some velocity at an angle of 30° with the horizontal. If its horizontal component is 30 m/s what is the actual ocity and its vertical component

3. Show that the velocity of a body on reaching the point from where it was Projected upwards is equal to the velocity with which it was thrown upwards

4. The displacement of a particle executing SHM is given as $y = 5 \sin(2\pi t + \pi/6)$. Find its time period, frequency and amplitude

5. Define adiabatic process. Does this process obey the Boyle's law?

6. Define musical sound. What is the unit of intensity of sound

7. Define strain. State the Hooke's law

8. Write any three examples of capillarity

9. Define electrical resistance and write its S.I unit

10. Write any three uses of photo electric cells

PART - B   (10m x 5 = 50m)

Note 1:Answer any five questions and each carries 10 marks

2:The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. a.   Define vector product. Write any four properties of vector product.   7M

    b. Explain work done by a force as an example of scalar product   3M

12. a) Show that the path of a projectile is parabola in case of oblique projection.
    b) A bullet is fired at an angle of 45^0 with the horizontal with a velocity of $49ms^{-1}$.
    Find the time of flight and horizontal range.

13. a) Derive the expression for the acceleration of a body moving upwards on a smooth inclined plane.   5m

    b) Write any five methods by which friction can be reduced   5m

14. a) Define potential energy and kinetic energy.   4m
    b) State and prove work-energy theorem.   6m

15. a) Define the following:
    1) simple pendulum 2) length of the pendulum 3) seconds pendulum.   6m

    b) The acceleration due to gravity on a planet is $1/6^{th}$ that on earth. If the length of a seconds pendulum on earth is 1 m, find the length of seconds pendulum on that planet.   4m

16. a) State first and second laws of thermodynamics.   5m
    b) Find the pressure required to compress adiabatically a gas at normal atmospheric pressure to one fifth of its volume. ($\gamma = 1.4$)   5m

17. a) Write any four differences between musical sound and noise   4m
    b) Write any six methods of controlling noise pollution   6m

18. a) Derive an equation for the balancing condition of Wheatstone's bridge.   7m

    b) If 10 Ω and 30 Ω resistances are used in the left and right gaps of a meter bridge respectively then find the balancing length   3m

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