6029
BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 2019
DIPLOMA IN ELECTRONICS AND COMMUNICATION 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. **Write Dimensional formula for a) Velocity b) Force c) Stress**
2. A body is thrown with some velocity at an angle of 60° with the horizontal. If its horizontal component is 50 m/s what is the actual velocity and its vertical component
3. **A body is allowed to fall freely from a height 490 m. Find the time taken to reach the ground**
4. **A particle performing SHM has an angular velocity 2π rad/s. Find its time period and frequency**
5. **Define isothermal process. Which gas law is obeyed by this process?**
6. **Write any three applications of beats**
7. **Write any three examples of viscosity**
8. **Define capillarity. Give one example**
9. **A current of 0.2 A flows through a conductor of resistance of 5 Ω. Find the potential difference applied**
10. **Write any three applications of superconductor.**

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. State the parallelogram law of addition of vectors and illustrate parallelogram law in case of sling. 4M
    b. Derive expression for magnitude and direction of resultant of two vectors inclined at an angle. 6M

12. a) Show that the path of a projectile in horizontal projection is parabola. 6M
    b) A bullet is fired horizontally with certain velocity from an elevation of 19.6 m. It hits the ground at a distance of 9.8 m from the foot of the elevation. Find the velocity of the bullet at the instant of firing? 4M

13. a) Define friction. State the laws of limiting friction. 6M
    b) What are the factors on which friction depends? 4M

14. a) Define kinetic energy. Derive relation between kinetic energy and momentum. 6M
    b) If the kinetic energy of a body is made 9 times the initial value, how does the momentum changes? 4M

15. a) Derive expression for the time period of a simple pendulum 7M
    b) The time period of a pendulum having length 0.16 m is 1 sec. Calculate the acceleration due to gravity at that place. 3M

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 five causes of noise pollution** 5M
    b) Write any five effects of noise pollution 5M

18. a) Describe an experiment to determine the specific resistance of a wire using metre bridge 7M
    b) The resistances in the left and right gaps of a meter bridge are 3 Ω and 2 Ω respectively. Find the balancing length 3M

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