

S.B. Roll No.....

**APPLIED PHYSICS-I**  
**1<sup>st</sup> Exam/Common/2355/0351/5403/May'18**

**Duration: 3Hrs.**

**M.Marks:75**

**SECTION-A**

**Q1. a) Fill in the blanks.**

**10x1=10**

- i. The dimensional formula of energy is -----.
- ii. Number of fundamental and base units in S.I system is-----.
- iii. A temperature of  $10^{\circ}\text{C}$  is equal to----- on Kelvin scale.
- iv. Momentum is the product of mass and -----.
- v. Sound is a ----- wave.

**b) State True or False.**

- vi. Rolling is a combination of rotational and translation motion.
- vii. Friction can be reduced to zero.
- viii. One Fermi is equal to  $10^{-15}\text{m}$
- ix. Air is heated by radiation.
- x. Angular velocity is defined as rate of change of displacement of a body.

**c) Multiple Choices.**

**5x1=5**

- i. The significant figures in 96.000 are  
a) 3                      b) 4                      c) 5                      d) 6
- ii. Rate of change of Momentum is directly proportional to  
a) Force                b) Displacement                c) Acceleration                d) Velocity
- iii. Ultrasonic waves are produced by  
a) Piezo electrical oscillator                b) Coloumb's law                c) Doppler's effect                d) Gauss's law
- iv. Action & Reaction do not balance each other because they  
a) Act on same body                b) Do not act on same body  
c) Are in opposite direction                d) Are not equal.
- v. The velocity of sound is maximum in  
a) Air                      b) Vaccum                      c) Steel                      d) Water

**SECTION-B**

**Q2. Attempt any six questions.**

**6x5=30**

- a. Convert 1 Newton of force into dyne using dimensional analysis.
- b. Differentiate between Echo and Reverberation time.
- c. Define Crest, trough, wavelength, compression and rarefaction.
- d. State different modulus of elasticity.
- e. Differentiate between scalar and vector quantities.
- f. Explain coefficient of viscosity and give its unit.
- g. What are the different modes of transfer of heat?
- h. Define pressure and give its units.

**SECTION-C**

**Attempt any three questions.**

**3x10=30**

**Q3.** State and explain law of conservation of energy.

**Q4. a)** Define Friction, give its unit and explain laws of friction.

- b) A fly wheel of radius 42cm is revolving with a speed of 120r.p.m. Find its angular and linear velocities.

**Q5. a)** Define free, forced and resonant vibrations

- b) Melting point of gold is  $1063^{\circ}\text{C}$ . Find its value in degree Fahrenheit and degree Kelvin

**Q6. a)** Check the correctness of the relation  $t = 2\pi\sqrt{l/g}$  where  $t$  is time period of pendulum,  $l$  is length and  $g$  is acceleration due to gravity.

- b) Explain different system of units.

**Q7.** State and explain Newton's laws of motion.