

Seat No. : \_\_\_\_\_

**NO-103**

**December-2015**

**B.Sc., Sem.-I (Fire and Safety)**

**CC-101 : Applied Physics**

**Time : 3 Hours]**

**[Max. Marks : 70**

1. (A) Prove equation  $F = mv^2/r$  using dimensional formula. 7  
**OR**  
Explain different types of fluid.
- (B) Write laws of vector addition and multiplication and explain them. 7  
**OR**  
Explain equal vector, negative vector, zero vector, collinear vector, coplanar vector, fixed vector, free vector.
2. (A) Explain intermolecular forces and angle of contact. 7  
**OR**  
Explain buoyancy and surface energy.
- (B) Explain hydrostatic paradox, archimedes principle, pascal law, molecular range, surface of influence. 7  
**OR**  
Explain surface tension, stream line, turbulent flow and tube of flow.
3. (A) Explain Carnot cycle and give its equation of efficiency. 7  
**OR**  
Explain three gas laws.
- (B) Explain Zeroth law of thermodynamics and first law of thermodynamics with sign convection. 7  
**OR**  
Explain heat engine and gives types of heat engine.
4. (A) Explain the modern collidge tube. 7  
**OR**  
Explain the gas filled tube.
- (B) Give property of X-rays. 7  
**OR**  
Give property of gamma particle.

5. Give short answer of following question :

14

- (1) The mass of alpha particle is \_\_\_\_\_.
  - (2) \_\_\_\_\_ are used to destroy tumors very deep inside a body.
  - (3) Give principle of the gas filled tube.
  - (4) In isothermal process \_\_\_\_\_ quantity is constant.
  - (5) Give equation of thermodynamically system when pressure is constant.
  - (6) Give example of external combustion engine.
  - (7) Give adiabatic relation between temperature and volume.
  - (8) The wavelength of the X-rays are range from \_\_\_\_\_ to \_\_\_\_\_ nm.
  - (9) Define Capillarity.
  - (10) What is angle of contact ?
  - (11) Write equation of Newton law of viscosity.
  - (12) What is sidereal day ?
  - (13) What is unit of plane angle ?
  - (14) If power is  $10^{-1}$ , then write its prefix.
-