PHYSICS THEORY   2008

Time: 3 Hours   Max.Marks.75

Note: Attempt **six** questions in all, selecting **three** quesstions from **Section A**, **two** questions from **Section B** and **one** question from **Section A**.

SECTION "A"

1. (a) Derive the equation $2aS = vf^2 - vi^2$ (05)
    (b) Write down the contribution of each of the following in the field of physics: (04)
         (i) Al beruni   (ii) Yaqoob Al-Knidi
    (c) A mass of 10kg at the end of a string is being whirled in a circle of radius 5m with a speed of 4m/s. What will be the centripetal force?   (03)
    (d) One milli ampere = _____ ampere. Fill in the blank.
 (01)

2. (a) State Pascal's law and explain the working of a hydraulic brake system with the help of a diagram.   (05)
    (b) Write two points of difference between the following: (02)
         (i) Scalar and vector quantities   (ii) "G" and "g"
    c)   A Car moving with a velocity of 36 Km/hr is brought to rest in 5 seconds; find its deceleration.   (03)
    (d) The point at which the whole weight of a body appears to act is called _____. (Fill in the blank)   (01)

3. (a) Define Newton's Law of Gravitation and find the equation for the mass of earth with the help of formula:

$$F = G \frac{m_1 \times m_2}{r^2}$$ (04)

    (b) A 100 kg car is accelerated from at rest at 4m/s for 10 seconds, calculate the word done.   (04)
    c)   State the following laws: (03)
         (i) Hooks's Law (ii) Law of inertia (iii) Law of conservation of energy

    (d) Steam produces more severe burn on the body than the hot water. Give scientific reasons.   (01)

4. (a) Draw a labeled diagram of refrigerator and describe the working of its main parts.   (05)
    (b) Write two points of difference between the following   (04)
         (i) Distance and displacement (ii)   Kinetic and Potential energy
     c) Define the following terms: (03)
         (i) Elasticity (ii) Newton (unit)   (iii) Force
    (d) The fundamental unit of length in S.I system is _____.
         (Fill in the blank)   (01)

5. (a) Define evaporation and write any four factors on which the rate of

evaporation depends.   (05)

  (b) What is Kinetic energy of a 200 kg car which is travelling with a velocity of 36 km/hr?   (04)

  (c) Write three methods of reducing friction   (03)

  (d) Mechanical advantage of a screw jack (M.A)_____.
(Fill in the blank)   (01)

SECTION "B"

6. (a) With the help of labeled diagram, explain the working of an electric ball
                                                                 (04)

  (b) A body is kept at a distance of 10cm from a concave mirror. The radius of curvature of the mirror is 10 cm, find the position and nature of image.

  (c Define the following: (03)
    (i) Focal length (ii) Farad   (iii) Critical angle

  (d) The device which collects the charge is called _____.
(Fill in the blank)   (01)

7. (a) Explain the working of a compound microscope with the help of a ray diagram.   (04)

  (b) Write two points of difference between the following   (04)
    (i) Direct current and alternating current
    (ii) Real image and a virtual image

  (c) Define the coulomb's law and derive its formula
(03)

  (d) The substance used as a medium between the two plates of a capacitor is called _____. (Fill in the blank)   (01)

8. (a) With the help of a rat diagram show the nature, size and position of the image formed in a concave mirror when: (04)
    (i) the object is placed beyond 'C'
    (ii) the object is placed between 'C' and 'F'

  (b) Find the current passing through the heater which has a resistance of 20 ohms and a potential difference of 220 V is supplied to it. (04)

  (c) Define photon and write two of its characteristics.   (03)

  (d) If a low resistance is connected parallel to a galvanometer, it is coverted into _____ . (Fill in the blank)   (01)

SECTION "C"

9. (a) Define loudness of sound. Give any three factors on which it depends   (04)

  (b) Write two points of difference between the following   (04)
    (i) Alpha rays and Beta rays
    (ii) Fission reaction and Fusion reaction   (04)

  (c) Write three advantages of Transistor   (03)

  (d) The number of protons in a nucleus is called_____.

(Fill in the blank)   (01)

10. (a) Define radio isotopes and write any three uses of radio-isotopes in industry.   (04)

(b) When a sound wave of frequency 200 Hz and wavelength 3m passes through a medium, calculate the velocity of the wave in that medium.(04)

(c) Define the following: (03)

    (i) Time period (ii) Amplitude   (iii) Doping

(d) The sound of explosion on the sun is not heard on the earth. (Give Scientific reasons).   (01)