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ANNUAL EXAMINATION – 2012-2013

Class – I X
SUBJECT – Physics

Time – 1½ Hrs.

M.M. – 80

Answers to this paper must be written on the paper provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this paper is the time allowed for writing the answers.

Section A is compulsory. Attempt any four questions from Section B.

The intended Marks for question or parts of questions are given in the brackets [].

Section – A (40 Marks)

Attempt all questions from this section

Question 1

- a) The radius of proton is 10^{-15} m. Express it in - [2]
- | | |
|-----------------|----------------|
| i) Femto metre | ii) Nanometre |
| iii) Millimetre | iv) Centimetre |
- b) What is the equivalence of the following and the SI unit of time - [2]
- | | |
|-------------------|----------------|
| i) Pico second | ii) Nanosecond |
| iii) Micro second | iv) Leap year |
- c) Write SI units along with their symbols of the following physical quantities - [2]
- | | |
|-------------------------|----------------------|
| i) Luminous intensity | ii) Temperature |
| iii) Quantity of matter | iv) Electric current |
- d) Explain the terms: [2]
- | | |
|----------|---------------------------------|
| i) Pitch | ii) Least count of screw gauge. |
|----------|---------------------------------|

Question 2

- a) Distinguish between acceleration and retardation. [2]
- b) A car is travelling at 54 km/h if its velocity increases to 72 km/h in 5 sec, find acceleration of the car in SI units. [2]
- c) What do the slopes of following graphs give - [2]
- | | |
|------------------------------|---------------------------|
| i) Displacement – time graph | ii) Velocity – time graph |
|------------------------------|---------------------------|
- d) Draw a velocity time graph for a body - [2]
- | |
|--|
| i) Under non – uniform acceleration |
| ii) When its velocity increases and decreases alternately. |
- e) A car weighing 1600 kg moving with a velocity of 30 m/s retards uniformly coming to rest in 20 seconds calculate: [2]
- | | |
|----------------------------|------------------------------------|
| i) Acceleration of the car | ii) magnitude of the force applied |
|----------------------------|------------------------------------|

Question 3

- a) Define the term thrust write its CGS and SI units. [2]
- b) State four laws of liquid pressure. [2]
- c) Explain the working of a syringe. [2]
- d) Explain the working of a hydraulic brake with the help of a well –labelled diagram. [2]
- e) Give Pascal's law. [2]

Question 4

- a) Describe an experiment to show linear expansions of solids. [2]
- b) Give four characteristics of an image formed by plane mirror. [2]
- c) What is a lighting conductor? How does it work? [2]
- d) Distinguish between a primary cell and a secondary cell. [2]
- e) Show by diagram any four shapes of artificial magnets? [2]

Section – B (40 Marks)

Attempt any four questions

Question 5

- a) A bullet is fired on a wall with a velocity of 100 m/s. If the bullet stops at a depth of 10 cm inside the wall then find the retardation provided by the wall. [2]
- b) For second's pendulum plot the graph between - [2]
- | | |
|------------------|------------------------|
| i) l and T^2 | ii) \sqrt{l} and T |
|------------------|------------------------|
- c) What are the characteristics of a straight line graph? [2]
- d) Under what circumstances does the following for a body - [2]
- | | | | |
|------------|-------------|--------------|-----------------------|
| i) $V = 0$ | ii) $u = 0$ | iii) $a = 0$ | iv) $t = \frac{u}{g}$ |
|------------|-------------|--------------|-----------------------|
- e) Two bodies A and B of mass m , and $2m$ are moving with velocities $2V$ and V respectively compare their: [2]
- | | |
|------------|--------------|
| i) Inertia | ii) Momentum |
|------------|--------------|

Question 6

- a) Give the importance of Newton's universal law of gravitation? [2]
- b) What will happen to the value of G if. [2]
- | |
|--|
| i) The size of the two objects is increased. |
| ii) The distance between two objects is decreased. |
- c) Name any two phenomena which are governed by the gravitational force of earth. [2]

- d) Distinguish between Universal Gravitational constant G and acceleration due to gravity g . [2]
 e) Give the SI units of following - [2]
 i) Gravitational constant ii) Acceleration due to gravity
 iii) Weight iv) Mass

Question 7

- a) What do the following indicate in the barometer - [2]
 i) Gradual fall in the mercury level
 ii) Sudden fall in the mercury level
 iii) Gradual rise in mercury level
 iv) Sudden rise in the mercury level
 b) Give the characteristic properties of upthrust. [2]
 c) What will happen to the buoyant force when - [2]
 i) The volume of the body submerged in fluid increases.
 ii) The density of the Fluid in which body is submerged decreases.
 iii) Temperature of the fluid increases.
 iv) Density of the body decreases.
 d) A body of mass m is floating in a liquid of density? [2]
 i) What is the apparent weight of the body?
 ii) What is the loss of weight of the body?
 e) Define the following with SI units if possible - [2]
 i) Density ii) Relative density

Question 8

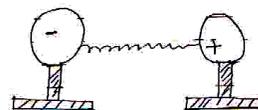
- a) Give the value of the coefficient of linear expansion for the following solids - [2]
 i) Steel ii) Gold iii) Copper iv) Aluminium
 b) Explain thermal expansion on the basis of Kinetic theory of matter. [2]
 c) Give the graph for variation of volume of water with temperature in the range of 0°C to 10°C . [2]
 d) Draw a labelled diagram of a thermos flask and state how the heat transfer is minimized. [2]
 e) Petrol storage tanks are painted with aluminium, give reason? [2]

Question 9

- a) With the help of diagrams distinguish between regular and irregular reflections. Give one example of each. [2]
 b) Give suitable reasons for the following - [2]
 i) Concave mirror is used as a shaving mirror.
 ii) Concave mirror is used by an ENT specialist.
 c) Draw a well – labelled diagram to show the focus if a parallel beam of light falls on - [2]
 i) Concave mirror ii) Convex mirror
 d) Give the properties of ultra sonic sound. [2]
 e) Give the characteristics of wave motion. [2]

Question 10

- a) Give the Electrical symbols and function of each of the following components. [2]
 i) Variable resistance ii) Tapping key
 iii) Load iv) Battery
 b) In the diagram along side, two conductors are connected by a copper wire. [2]



- c) Define the following terms of an electric cell - [2]
 i) Electrode ii) Cathode
 iii) Electrolyte iv) Anode
 d) i) What is meant by magnetic Induction. [2]
 ii) List the basic properties of a magnet.
 e) Draw magnetic field of bar magnet - [2]
 i) magnet placed with its north pole pointing towards the north of earth.
 ii) Magnet placed with its south pole pointing toward north of earth.

