

GREENLAWNS HIGH SCHOOL
PHYSICS 1ST TERM EXAMINATION 2022-23

STD.9

DATE:22/9/2022

TIME: 1.5 HR.

MARKS: 60

NOTE:

- 1] Answer to this paper must be written on the paper provided separately.
- 2] You will not be allowed to write during the first 10 minutes. This time is to be spent in reading the paper.
- 3] The time given at the head of this paper is the time allowed for writing the answers.
- 4] Section A is compulsory. Attempt any 3 questions from Section B.
- 5] The intended marks for a question or parts of questions are given in the brackets [].

SECTION A [30 MARKS]

ALL QUESTIONSS IN THIS SECTION ARE COMPULSORY.

QUESTION 1

Choose the correct answers to the questions from the given options: [8]

(i) _____ is a scalar quantity.

- (a) Momentum (b) Density (c) Weight (d) Torque

(ii) The time period of oscillations of a simple pendulum depends on:

- (a) amplitude (b) mass of a body (c) material of pendulum (d) effective length of a pendulum

(iii) The least count of a Vernier calliper is _____

- (a)1mm (b) 0.001cm (c) 0.1mm (d) 0.1cm

(iv)The non-metric unit of length is _____

- (a)light year (b) nanometre (c) metre (d) centimetre

Contd.....

(v) The force which is not an example of non-contact force:

- (a) Gravitational force (b) electrostatic force (c) restoring force (d) magnetic force

(vi) The gradual fall in barometric height represents

- (a) indication of storm (b) no change in weather (c) indication of dry weather (d) possibility of rain

(vii) The property of inertia is more in

- (a) a cycle (b) a cricket ball (c) a truck (d) a train

(viii) The gravitational unit of force in M.K.S. system is

- (a) gf (b) newton (c) kgf (d) dyne

B] Give two uses of Bramah press.

[2]

QUESTION 2

[A] State whether the following statements are true or false. If false correct the statement. [2]

(i) The linear momentum of a body is the product of mass and its volume.

(ii) A body not acted upon by any force will always be at rest.

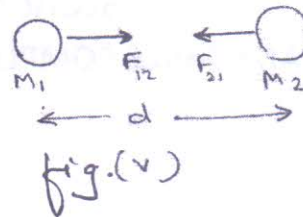
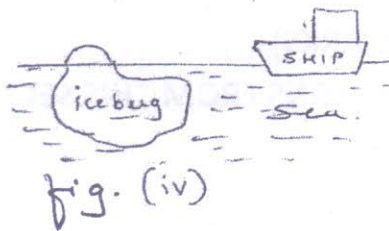
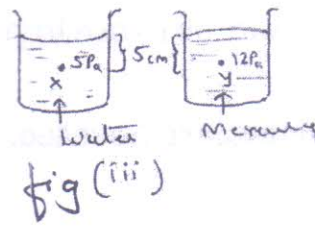
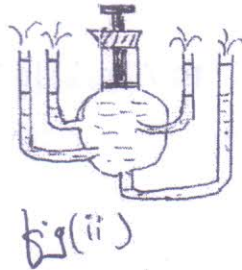
[B] Define:

[3]

(i) Buoyant force (ii) Inertia (iii) Relative density

Contd.....

[C] Study the figures given below and state the law applicable in each case: [5]



QUESTION 3

A] A body weighs 95.5 gf in air, 87.7 gf in water and 83.5 gf in a liquid. Find the relative density of the liquid. [2]

B] In a hydraulic machine, the two pistons are of area of cross section in the ratio 1: 4. What force is needed on the narrow piston to overcome a force of 125 N on the wider piston. [2]

Contd.....

C] A piece of copper of density $8.96 \times 10^3 \text{ kg m}^{-3}$ and volume 150 cm^3 is completely immersed in water of density 1000 kg m^{-3} . Calculate the upthrust due to water. [2]

D] The velocity of a motorbike rose from 10 ms^{-1} to 70 ms^{-1} in 1 minute. Calculate: [4]
i) its acceleration ii) distance travelled.

SECTION B [30 MARKS]

ATTEMPT ANY THREE COMPLETE QUESTIONS FROM THIS SECTION.

QUESTION 4

A] Give scientific reasons. [3]

- i) The school bags have broad shoulder straps.
- ii) An egg sinks in fresh water but floats in a strong solution of salt.
- iii) Mercury in the barometer does not affect the torricellian vacuum.

B] i) Name the physical quantity on which Newton's 2nd law is based on. [1]
ii) Explain: When brakes are applied the person sitting in a moving car gets a forward jerk. [2]

C] Name the following: [4]

- i) The process of comparison of the given physical quantity with the known standard quantity of same nature.
- ii) The number of oscillations made by a pendulum in one second.
- iii) The force acting normally on a surface
- iv) The physical quantity which is measured in torr.

Contd....

QUESTION 5

A) Distinguish between the pairs given below on the basis of what is given in the brackets: [3]

- i) Rest – Motion (position with respect to surroundings)
- ii) Mass - Weight (measuring instrument)
- iii) Distance- Displacement (comparison of magnitudes)

B) Mention the action and reaction force in each of the following cases: [3]

- i) A brick lying on the ground.
- ii) Firing a bullet from a gun.
- iii) A person diving off a diving board at the swimming pool.

C) The displacement of a car at different instants starting from rest is given in the table. Draw a displacement-time graph using the given information and calculate its velocity graphically. [4]

Displacement (m)	0	20	40	60	80	100
Time (sec)	0	1	2	3	4	5

QUESTION 6

A) How long would a force of 30N act on a stationary body of mass 10kg so that it gains a velocity of 24 ms^{-1} ? [3]

B) A cargo ship is loaded in sea water to its maximum capacity. What will happen if the ship is moved to river water? Why? [3]

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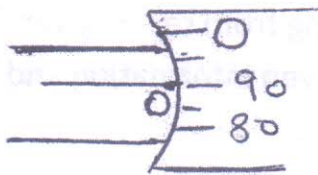
C] i) Is the year 2100, a leap year or not? Why do you say so? [2]

ii) A cube (weight 10N in air) was floating in water. What is its apparent weight? Why? [2]

QUESTION 7

A] When a glass beaker falls on a stone floor it shatters. This is not likely if it were to fall on a surface covered with grass. Why is this so? Name the law which relates to this. [3]

B] Observe the figure given below and identify the type of zero error. Also calculate the zero error. [3]



C] Complete the following: [4]

i) $2.5 \text{ GW} = \underline{\hspace{2cm}} \text{ W}$

ii) $3 \times 10^{-6} \text{ kg} = \underline{\hspace{2cm}} \text{ mg}$

iii) $1.5 \text{ metric tonne} = \underline{\hspace{2cm}} \text{ quintal}$

iv) $1 \text{ nm} = \underline{\hspace{2cm}} \text{ A}^\circ$

BEST OF LUCK