GREEN LAWNS HIGH SCHOOL

TERMINAL EXAMINATION 2020

SUBJECT: PHYSICS   CLASS: X

TIME: 2 HOURS (INCLUDING MS-FORMS)   MARKS: 40

Note:
- All answers for this paper to be written on the composition sheet.
- You will not be allowed to write during the first 10 minutes. Use this time to read the paper carefully.
- The time given at the head of this paper is the time allowed for writing the answers.
- Write concise answers using scientific terms.
- All the questions are Compulsory.
- Write your Roll No., Name and Class-Div on the right hand side top corner on every page of your composition-sheet.
- Leave a line after answering every question.
- After you finish writing the paper, number all the pages, click bright and clear pictures, include all the pictures into one PDF, rename that PDF with your Roll No., Name and Class-Div and upload it under assignment. Do not forget to turn-in/ hand-in.

Question.1   (10)

1) i) Name the force which provides centripetal force, when a stone tied at   (2)
the end of a string is whirled in a circular path with uniform speed by hand.
ii) How does a centripetal force differ from a centrifugal force with reference to the direction in which they act?

2) A uniform metre rule balances horizontally on a knife edge placed at the   (3)
53 cm mark when a weight of 15 gf is suspended from one end.
(i)Draw a diagram of the arrangement.
(ii)What is the weight of the rule?

3) A simple pendulum, while oscillating, rises to a maximum height of 4 cm   (2)
 from its rest position when it reaches to its extreme position on one side. If mass of
the bob of the simple pendulum is 600 g and g = 10 ms^{-2}. Find:
i) The kinetic energy of simple pendulum at the mean position.
ii) The total energy of simple pendulum at the extreme position.

4) For the given examples, state whether the work done by the person will be positive, negative or zero. Give reason for your each answer.   (3)
i) When a coolie raises up a load which is kept on the ground.
ii) When he starts walking on a horizontal ground carrying a load on his head.
iii) When fielder takes a catch in a cricket match.

Question.2 (10)

1) i) What is mechanical advantage of a machine? (2)
ii) Why is it less than velocity ratio for an actual practical machine?

2) Draw a neat labelled diagram of block and tackle system of pulleys (3)
having velocity ratio 5. In your diagram clearly indicate the points of application and
direction of load and effort.

3) State two conditions necessary for total internal reflection to occur. (2)

4) A coin kept inside water when viewed from air in vertical direction, appears to be (3)
raised by 3.2 cm. Find the depth of the coin in water. (Refractive index of water = $\frac{4}{3}$)

Question.3 (10)

1) A lens forms the image of an object placed at a distance of 35 cm from it (2)

on a screen placed at a distance 70 cm on other side of it. Find the focal length of lens.

2) A lens forms an image between the object and the lens. Draw a neat labelled ray (3)
diagram to show the formation of such an image.

3) i) Define: Dispersion of light. (2)
   ii) Explain the cause of dispersion of white light through a prism.

4) i) Which prism is used to obtain the spectrum of infrared radiations? (3)
   ii) What is the reason behind using this prism?
   iii) Why infrared radiations are used for photography in fog?

Question.4 (10)

1) Explain the effect of impurities on the melting point of ice. What is the (2)
use of it?

2) i) Which property of water makes it useful in the process of fomentation? (3)
ii) Define this property.
iii) State S.I. unit of this property.

3) Name the following: (2)
i) A particle or radiation which can be used to sterilize bandages, dressings, syringes
etc.
ii) A particle or radiation which has maximum ionising power.

4) A certain nucleus A (mass number 14 and atomic number 6) is   (3) radioactive and becomes nucleus B (mass number 14 and atomic number 7) by the emission of a particle.

i) Write the above change in form of a reaction.

ii) Which substance can be used to stop the particle mentioned in the above question?

iii) What is the scientific use of emission of above mentioned particle?