AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS IX

ANNUAL EXAMINATIONS (THEORY) 2023

Physics Paper II

Time: 1 hour 50 minutes   Marks: 25

INSTRUCTIONS

Please read the following instructions carefully.

1. Check your name and school information. Sign if it is accurate.

> **I agree that this is my name and school.**
> **Candidate's Signature**

   RUBRIC
2. There are SEVEN questions. Answer ALL questions. Questions 6 & 7 each offer TWO choices. Attempt any ONE choice from each.

3. When answering the questions:

   Read each question carefully.
   Use a black pointer to write your answers. DO NOT write your answers in pencil.
   Use a black pencil for diagrams. DO NOT use coloured pencils.
   DO NOT use staples, paper clips, glue, correcting fluid or ink erasers.
   Complete your answer in the allocated space only. DO NOT write outside the answer box.

4. The marks for the questions are shown in brackets ( ).

5. You may use a simple calculator if you wish.

Q.1. (Total 2 Marks)

Write any TWO points about the importance of physics in science and technology.

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Q.2. (Total 3 Marks)

Write any THREE examples of turning effect of force from daily life.

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Q.3. (Total 2 Marks)

Two identical balls of masses m_1 and m_2, whereas $m_1 = m_2$, are separated by a distance of r. If the distance between the two balls is doubled, then derive an equation to prove that the gravitational force F_G between them will be decreased one-fourth times of the initial force.
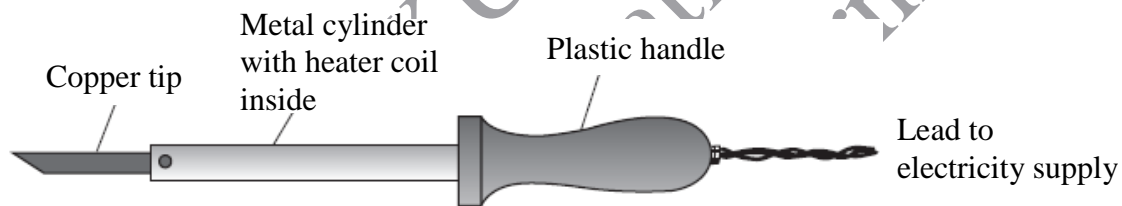
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Q.4. (Total 3 Marks)

Convert 100°F temperature into degree centigrade (°C) and Kelvin (K).

Q.5. (Total 3 Marks)

A soldering iron is shown in the given diagram that is used to melt solder, for joining wires in an electrical circuit.

a. Why is the tip of soldering iron made up of copper? (1 Mark)

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b. Why is the handle of soldering iron made up of plastic? (1 Mark)

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_____

c. Name the process by which heat transfers from the copper tip to the solder. (1 Mark)

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Q.6.   (Total 6 Marks)

EITHER

a.   A rescue helicopter is ascending vertically with a velocity of 20 m/s from a base camp. At the
     height of 60 m above the Earth, a packet of relief goods is mistakenly dropped. Calculate the time
     taken by the packet to reach the ground.

     (**Note**: Take the value of acceleration due to gravity is 10 m/s^2.)

OR

b.   A net force of 1000 N is applied to a passenger bus for 10 s that causes the bus to move on a
     straight road. Calculate the momentum of the bus.

Q.7.   (Total 6 Marks)

EITHER

a.   Explain in any SIX points, why machines cannot give 100% efficiency in their available
      surrounding.

OR

b.   Describe the fourth state of matter 'plasma' in any SIX points.

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