PVG's
Muktangan English School & Jr. College, Pune – 9
Terminal Examination (2024-2025)
STANDARD - IX

Subject: Science & Technology (Part I)	**Marks: 40**
Date: 21/10/2024	**Time: 8.00 am-10.00 am**

Note:
1) All questions are compulsory
2) Draw scientifically, technically correct labelled diagram wherever necessary.
3) Start writing each main question on new page.
4) Figures to the right indicate full marks.
5) For each MCQ (i.e., Q.no. 1- (A)) evaluation would be done for the first attempt only.
6) For each MCQ correct answer must be written as shown in the Eg. (i) A, (ii) C etc.

Q- I A) Choose the correct alternative. **(5)**

  i) The rate of change of velocity is called as _____.
   a) Momentum   b) acceleration   c) speed   d) Uniform motion

  ii) Atomic number of potassium is _____.
   a) 8   b) 15   c) 19   d) 14

  iii) SI unit of resistance is _____.
   a) Volt   b) Ohm-meter   c) Coloumb   d) Ohm

  iv) When a fan is running on electricity, electric energy get converted into _____ energy.
   a) mechanical   b) light   c) sound   d) heat

  v) The potential energy of your body is least when you are _____.

   A) Sitting on chair   B) Sitting on the ground

   C) Sleeping on the ground   D) Standing on the ground

Q-I B) Answer the following sub-questions **(5)**

  1) Define 'electric potential difference'.

  2) State, 'Newton's third law of Motion'.

3) Match the following

	A		B
i)	Beryllium	a)	B
ii)	Sodium	b)	Be
		c)	Na

4) State whether the given statement is true or false and rewrite the statement.

   "when the force and the displacement are in opposite direction, the work done by the force is negative."

5) Complete the co-relation:
   1 Kilovolt **:** 10^3 V **: :** 1 millivolt **:** _____

Q-II A) Give scientific reasons (any two) (4)
   1) It is easier to stop tennis ball as compared to a cricket ball, when both are travelling with the same velocity.

   2) Work done on an object moving with uniform circular motion is zero.

   3) Neon has zero valency.

Q-II B) Answer the following questions (Any three) (6)
   1) Distinguish between electric conductors and insulators by giving any two points of difference.
   2) Explain 'Inertia' with an example.
   3) State the 'Law of conservation of energy'.
   4) Resistors having resistances of 15 Ω, 20 Ω and 10 Ω are connected in parallel. What is the effective resistance in the circuit?
   5) Write the name of following compounds. (i) $Ca(OH)_2$ (ii) HCl

Q.III A) Answer any five of the following questions. (15)
   1) Distinguish between speed and velocity by giving any three points of difference.

   2) Observe the figure, where point 'A' is at a height 'h' from the ground. Calculate the total energy of an object of mass 'm' at point 'A'.

A

h

ground
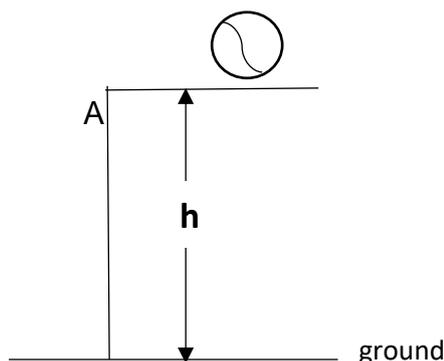
Q.III A)

3) Name the unit energy for commercial use. Also show that
1 unit = 3.6 X 10⁶ Joules.

4) Complete the following table.

Component	Symbol	Use
1. electric cell	_____	To apply a potential difference between two ends of conductor
2. _____	—ⵑⵑ—	_____

5) A car start from rest and moves with uniform acceleration. If it attains the velocity of 15 m/s in 5 seconds, calculate the acceleration and the distance travelled in that time.

6) Find the molecular mass of Nitric acid. (Write in tabular form. Atomic mass of H=1, N=14, O=16)

7) Observe the figure and answer the following questions.
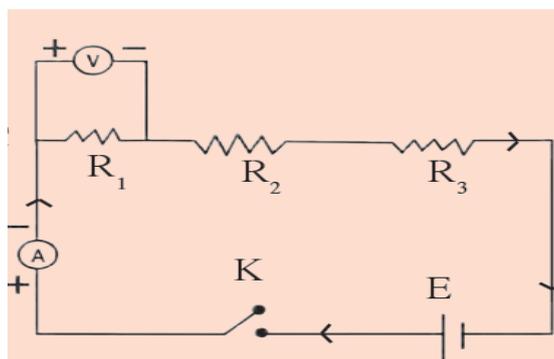
(i) Name the device connected in parallel with R_1.
(ii) Name the type of arrangement shown in the figure.
(iii) Write the equation to calculate the effective resistance in this circuit.

8) Write down the steps to deduce the chemical formula for Sodium Sulphate.

Q.IV Answer any one of the following. (5)
   1) Using the given graph, derive an equation to show the relation of distance
     and time for a uniformly accelerated motion.
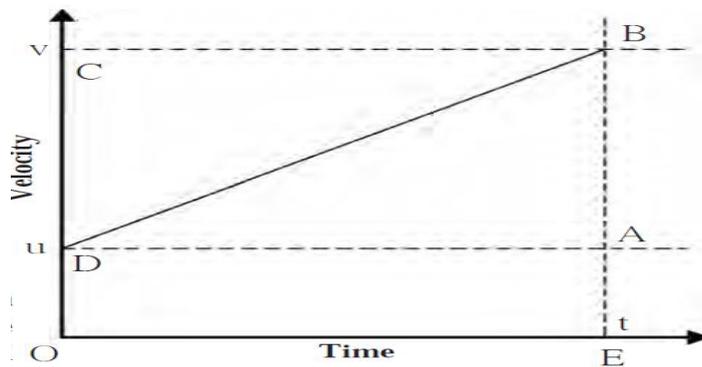
   2) Derive the formula for the kinetic energy of an object of mass m, moving with
     velocity v.

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