



# G-W CLASSES, GONDIA

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## GW PARIKSHA-01

**CLASS-IX**

**SUBJECT-SCIENCE**

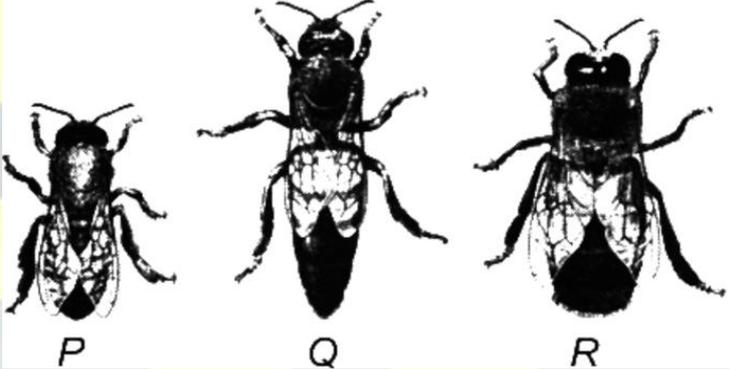
**TIME ALLOWED: 3 HRS**

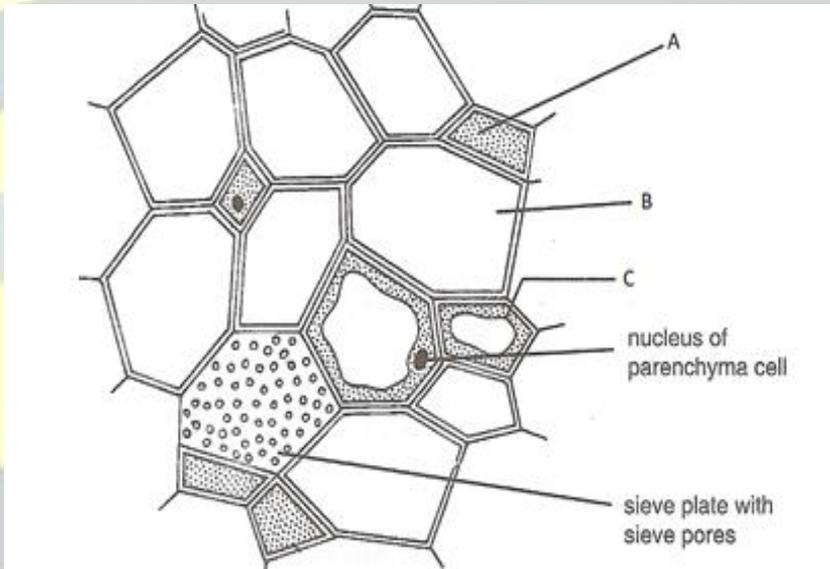
**MAX. MARKS : 80**

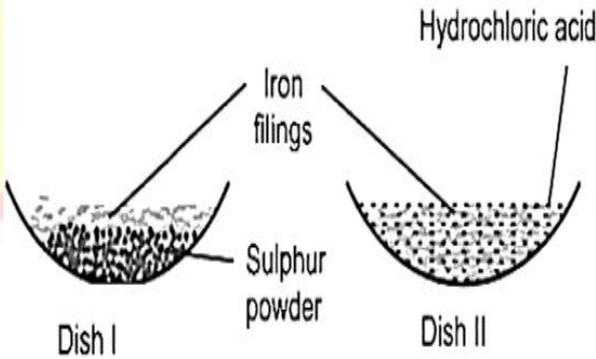
### General Instructions:

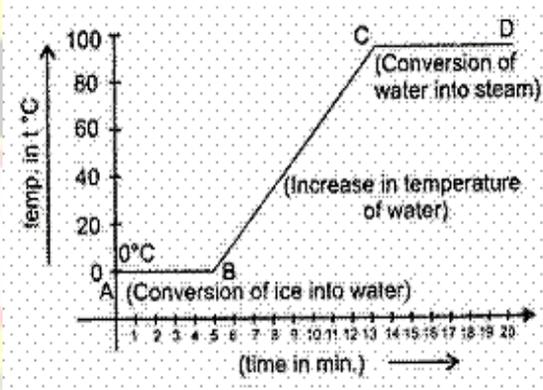
- This question paper consists of 39 questions in 3 sections. Section A is Biology, Section B is Chemistry and Section C is Physics.
- All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

<b>SECTION A</b>										
1	<p>On observing a permanent slide under the microscope a student found the structure without cell - wall. It had light and dark bands. The slide could be:</p> <div style="text-align: center;"> </div> <p>a) striated muscle      b) unstriated muscle      c) parenchyma      d) nerve cell</p>	<b>[1]</b>								
2	<p>Plasmolysis in a plant cell is defined as</p> <p>a) Break down (lysis) of plasma membrane in hypotonic medium b) Shrinkage of cytoplasm in hypertonic medium c) Shrinkage of nucleoplasm      d) shrinkage of nucleolus</p>	<b>[1]</b>								
3	<p>Match the following with the correct response :</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="padding: 5px;">(1) Large sized vacuoles</td> <td style="padding: 5px;">(A) Plant cells</td> </tr> <tr> <td style="padding: 5px;">(2) Swelling of cells</td> <td style="padding: 5px;">(B) Hypertonic solution</td> </tr> <tr> <td style="padding: 5px;">(3) Shrinkage of cell content</td> <td style="padding: 5px;">(C) Endo-osmosis</td> </tr> <tr> <td style="padding: 5px;">(4) Organelle that control all the activities</td> <td style="padding: 5px;">(D) Nucleus</td> </tr> </tbody> </table>	(1) Large sized vacuoles	(A) Plant cells	(2) Swelling of cells	(B) Hypertonic solution	(3) Shrinkage of cell content	(C) Endo-osmosis	(4) Organelle that control all the activities	(D) Nucleus	<b>[1]</b>
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(4) Organelle that control all the activities	(D) Nucleus									

	<p>a) 1 - C, 2 - B, 3 - D, 4 - A                      b) 1 - B, 2 - D, 3 - A, 4 - C</p> <p>c) 1 - D, 2 - A, 3 - C, 4 - B                      d) 1 - A, 2 - C, 3 - B, 4 - D</p>	
4	<p>Select the incorrect sentence</p> <p>a) Two bones are connected with ligament</p> <p>b) Cartilage is a form of connective tissue</p> <p>c) Blood has matrix containing proteins, salts, and hormones</p> <p>d) Tendons are non - fibrous tissue and fragile</p>	[1]
5	<p>Given figures represent three different castes of a colony of honeybees.</p>  <p>Select the incorrect statement regarding these.</p> <p>a) P is the worker bee which is a sterile female.</p> <p>b) P and Q emerge from unfertilised eggs, while R emerges from fertilised eggs.</p> <p>c) R is the drone which is a fertile male.</p> <p>d) Q is the queen which lays both fertilised (2n) and unfertilised (n) eggs.</p>	[1]
6	<p><b>Assertion (A):</b> Epithelial tissue form the lining of the mouth and alimentary canal and protect these organs.</p> <p><b>Reason (R):</b> They help in the absorption of water and nutrients.</p> <p>a) Both A and R are true and R is the correct explanation of A.</p> <p>b) Both A and R are true but R is not the correct explanation of A.</p> <p>c) A is true but R is false.                      d) A is false but R is true.</p>	[1]
7	<p><b>Assertion (A):</b> The outer membrane of mitochondria is folded into cristae.</p> <p><b>Reason (R):</b> Cristae increases the surface area.</p> <p>a) Both A and R are true and R is the correct explanation of A.</p> <p>b) Both A and R are true and R is not the correct explanation of A.</p> <p>c) A is true and R is false.                      d) A is false and R is true.</p>	[1]
8	<p>Name the following: -</p> <p>(a) Tissue that forms the inner lining of our mouth.</p> <p>(b) Tissue that connects muscle to bone in humans.</p> <p>(c) Tissue that transports food in plants.</p>	[2]

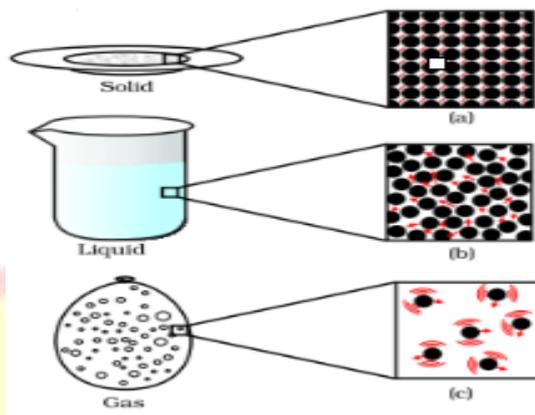
	(d) Tissue that stores fat in our body. (e) Connective tissue with a fluid matrix. (f) Tissue present in the brain.	
9	Differentiate between rough and smooth endoplasmic reticulum. How is the endoplasmic reticulum important for membrane biogenesis? <b>OR</b> Draw a neat diagram of plant cell and label any three parts which differentiate it from an animal cell.	[2]
10	What is pasturage and how is it related to honey production?	[2]
11	Study the following diagram of phloem and answer the following questions:  1. Identify A, B and C in the given diagram. 2. What term is used for the end walls of the B? 3. What are the two functions performed by C?	[3]
12	Answer the following questions: 1. How can we genetically modify crops? 2. What is a various factor that is essential for good quality crops? 3. Enlist the abiotic stresses to bear by crops.	[3]
13	<b>Read the following text carefully and answer the questions that follow:</b> Animal tissue has various types of epithelial tissue, connective tissue, muscular tissue, and nervous tissue and of tissue one of them is the connective tissue which consists of blood, bone, cartilage. Blood is the fluid matrix called plasma in which red blood cells, white blood cells, and platelet are suspended while bone form the framework that supports the body it also anchors the muscle and supports the main organ of the body. Two bones are connected by a ligament. cartilage is a	[4]

	<p>solid matrix composed of sugar and protein.</p> <p>1.Name the tissue which connects muscle to a bone. (1)</p> <p>2.Matrix of bone cells are composed of (1)</p> <p>3.Two bones are connected by ligament how muscle connects to the bone? (2)</p> <p style="text-align: center;"><b>OR</b></p> <p>Where the cartilage is found in the human body? (2)</p>	
14	<p>What is membrane biogenesis? How is plasma membrane formed during this process?</p> <p style="text-align: center;"><b>OR</b></p> <p>Describe the types of connective tissues along with their functions.</p>	<b>[5]</b>
<b>SECTION B</b>		
15	<p>Which of the two statements is/are true?</p> <p><b>Statement A</b> : A substance is said to be in the liquid state if, under normal pressure,its melting point (M.P.) is below the room temperature.</p> <p><b>Statement B</b> : The melting point of a solid and the freezing point of a liquid are different.</p> <p>a) Neither statement Anor statement B                      b) Statement B</p> <p>c) Both the statements - A and B                              d) Statement A</p>	<b>[1]</b>
16	<p>Which of the following statements is not true about <math>H_2SO_4</math> ?</p> <p>A.It is composed of 2 Hydrogen, 1 Sulphur, and 4 Oxygen atoms.</p> <p>B.Its relative molecular mass is 98.</p> <p>C.It is composed of one molecule of <math>H_2</math> , one atom of S, and two molecules of <math>O_2</math> .</p> <p>D. Its relative molecular mass is 108.</p> <p>a) B and C                      b) All of these                      c) A, B and D                      d) C and D</p>	<b>[1]</b>
17	<p>Neha took two China dishes and marked them as I and II.</p> <div style="text-align: center;">  <p>The diagram shows two China dishes, Dish I and Dish II. Dish I contains a mixture of iron filings and sulphur powder. Dish II contains a mixture of iron filings and dilute hydrochloric acid.</p> </div> <p>In China dish I, she mixed iron filings and sulphur powder. In China dish II, she mixed iron filings and dilute hydrochloric acid. Which of the following statements is correct regarding this activity?</p>	<b>[1]</b>

	<p>a) In China dish II, a new compound is formed, which is different from iron filings and dilute hydrochloric acid.</p> <p>b) All of these</p> <p>c) A colourless and odourless gas comes out from China dish II.</p> <p>d) In China dish I, a mixture is formed, where iron filings and sulphur powder can be seen separately.</p>									
18	<p>Match the following with the correct response :</p> <table border="1" data-bbox="416 533 1174 786"> <tbody> <tr> <td>(a) Alpha particles</td> <td>(i) Negligible mass</td> </tr> <tr> <td>(b) Protons</td> <td>(ii) Helium nucleus</td> </tr> <tr> <td>(c) Electrons</td> <td>(iii) Neutral</td> </tr> <tr> <td>(d) Neutrons</td> <td>(iv) 1 unit of positive charge</td> </tr> </tbody> </table> <p>a) (a) - (iii), (b) - (ii), (c) - (iv), (d) - (i)      b) (a) - (i), (b) - (iii), (c) - (ii), (d) - (iv)</p> <p>c) (a) - (ii), (b) - (iv), (c) - (i), (d) - (iii)      d) (a) - (iv), (b) - (i), (c) - (iii), (d) - (ii)</p>	(a) Alpha particles	(i) Negligible mass	(b) Protons	(ii) Helium nucleus	(c) Electrons	(iii) Neutral	(d) Neutrons	(iv) 1 unit of positive charge	[1]
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(b) Protons	(ii) Helium nucleus									
(c) Electrons	(iii) Neutral									
(d) Neutrons	(iv) 1 unit of positive charge									
19	<p>The sample of water from a well is analysed. What will be the ratio of hydrogen and oxygen in it by mass?</p> <p>a) 1 : 8 or 2 : 16      b) 8 : 1      c) 16:1      d) 1 : 16</p>	[1]								
20	<p>The inferences drawn by the temperature versus time graph are</p>  <ol style="list-style-type: none"> <li>During the melting, temperature of substance does not change.</li> <li>Temperature rises after all amount of ice melts.</li> <li>At a specific temperature water starts boiling and temperature remains the same during the conversion of water into steam.</li> </ol> <p>Which statement is correct regarding graph?</p> <p>a) All (A), (B) and (C) are correct      b) Only (C) is correct</p> <p>c) Only (A) is correct      d) Only (B) is correct</p>	[1]								
21	<p>Which of the following are physical changes?</p> <p>1. Melting of iron metal      2. Rusting of iron</p>	[1]								

	<p>3. Bending of an iron rod                      4. Drawing a wire of iron metal</p> <p>a) (i), (ii) and (iii)                      b) (ii), (iii) and (iv)</p> <p>c) (i), (ii) and (iv)                      d) (i), (iii) and (iv)</p>																			
22	<p><b>Assertion (A):</b> Pure water obtained from different sources such as a river, well, spring, sea, etc. always contains hydrogen and oxygen combined in the ratio of 1: 8 by mass.</p> <p><b>Reason (R):</b> A chemical compound always contains the same elements combined in the same fixed proportion by mass.</p> <p>a) Both A and R are true and R is the correct explanation of A.</p> <p>b) Both A and R are true but R is not the correct explanation of A.</p> <p>c) A is true but R is false.                      d) A is false but R is true.</p>	[1]																		
23	<p>Give the formulae of the compounds formed from the following sets of elements.</p> <p>1. Calcium and fluorine    2. Hydrogen and Sulphur    3. Nitrogen and Hydrogen</p> <p>4. Carbon and chlorine    5. Sodium and oxygen    6. Carbon and oxygen</p>	[2]																		
24	<p>Differentiate between a true solution and a colloid.</p> <p style="text-align: center;"><b>OR</b></p> <p>Differentiate between mixtures and compounds by giving appropriate examples.</p>	[3]																		
25	<p>In the following table, the mass numbers and the atomic numbers of certain elements are given.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Element</th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> </tr> </thead> <tbody> <tr> <td>Mass no.</td> <td>1</td> <td>7</td> <td>14</td> <td>40</td> <td>40</td> </tr> <tr> <td>At. no.</td> <td>1</td> <td>3</td> <td>17</td> <td>18</td> <td>20</td> </tr> </tbody> </table> <p>1. Select a pair of isobars from the above table.</p> <p>2. What would be the valency of element C listed in the above table?</p> <p>3. Which two sub - atomic particles are equal in number in a neutral atom?</p>	Element	A	B	C	D	E	Mass no.	1	7	14	40	40	At. no.	1	3	17	18	20	[3]
Element	A	B	C	D	E															
Mass no.	1	7	14	40	40															
At. no.	1	3	17	18	20															
26	<p><b>Read the following text carefully and answer the questions that follow:</b></p> <p>Gases are highly compressible as compared to solids and liquids. The liquefied petroleum gas (LPG) cylinder that we get in our home for cooking or the oxygen supplied to hospitals in cylinders is compressed gas. Compressed natural gas (CNG) is used as fuel these days in vehicles. The liquid takes up the shape of the container in which they are kept. Liquids flow and change shape, so they are not rigid but can be called fluid. Solids and liquids can diffuse into liquids. The aquatic animals can breathe underwater. The rate of diffusion of liquids is greater</p>	[4]																		

than solid.



1. Why Compressed natural gas (CNG) is used as fuel these days in vehicles? (1)
2. How can we say that liquid do not have their fixed shape? (1)
3. How do aquatic animals breathe under water? (2)

**OR**

What is diffusion? (2)

27 1. Describe Bohr's model of an atom. Draw a sketch of Bohr's model of an atom with three shells. **[5]**

2. What was the drawback of Rutherford's model of an atom?

**OR**

Complete the following table.

Atomic Number	Mass Number	Number of Neutrons	Number of Protons	Number of Electrons	Name of the atomic Species
9	-	10	-	-	-
16	32	-	-	-	Sulphu
-	24	-	12	-	-
-	2	-	1	-	-
-	1	0	1	0	-

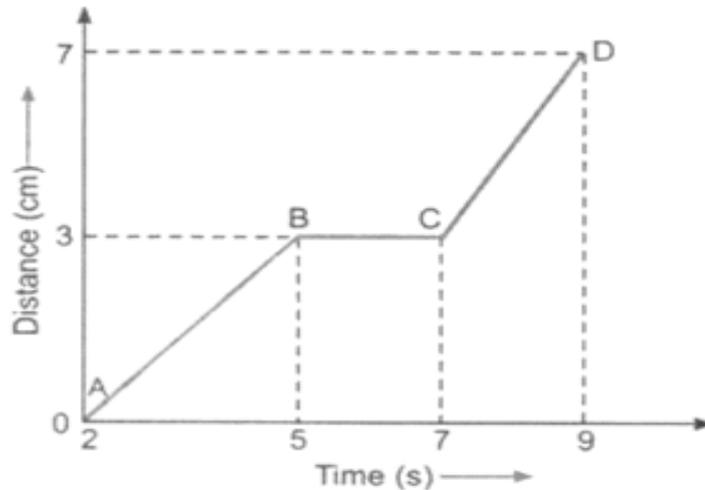
**SECTION C**

28 As the sailor jumps forward out of a rowing boat, the force on the boat moves it backward. This is an example of **[1]**



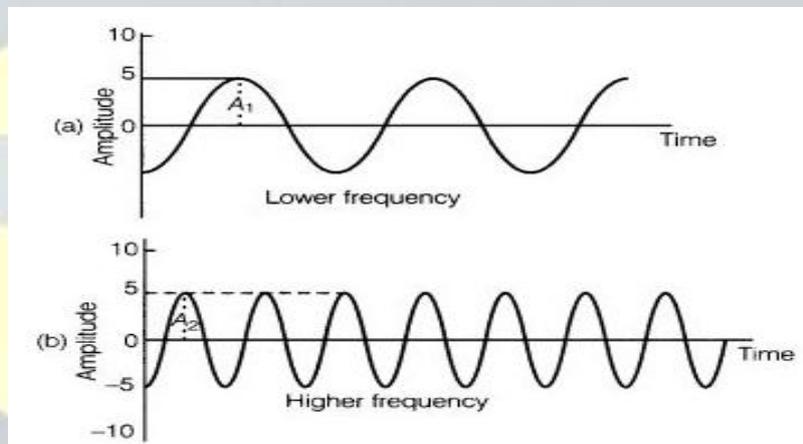
- |                                    |                        |
|------------------------------------|------------------------|
| a) second law of motion            | b) third law of motion |
| c) law of conservation of momentum | d) first law of motion |

29	A boy of mass 50 kg runs up a flight of 120 stairs, each measuring a height of 25 cm, in one minute and 40 seconds. If $g = 10 \text{ m s}^{-2}$ , the power of the boy is a) 750 W                      b) 500 W                      c) 250 W                      d) 150 W	[1]
30	Find the incorrect statement a) None of these. b) The slope of velocity - time graph gives instantaneous acceleration c) When a body moves with constant speed its acceleration is zero d) The body is said to be accelerating if it moves in a uniform circular motion	[1]
31	If a planet existed whose mass was twice that of Earth and whose radius 3 times greater, how much will a 1 kg mass weigh on the planet? a) 25 N                      b) 2.17 N                      c) 1.1 N                      d) 5 N	[1]
32	<b>Assertion (A):</b> A sound is a form of energy that travels in the form of waves. <b>Reason (R):</b> The disturbance which moves through a medium when the particles of the medium set the neighbouring particles into motion is known as a wave. a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A. c) A is true but R is false.                      d) A is false but R is true.	[1]
33	Using second law of motion, derive the relation between force and acceleration. A bullet of mass 10 g strikes a sand bag with a velocity of $10^3 \text{ ms}^{-1}$ and gets embedded after travelling 5 cm. Calculate 1. the resistive force exerted by the sand bag on the bullet. 2. the time taken by the bullet to come to rest.	[2]
34	A rocket of $3 \times 10^6 \text{ kg}$ mass takes off from a launching pad and acquires a vertical velocity of $1 \text{ kms}^{-1}$ at an altitude of 25 km. Calculate 1. Potential energy                      2. Kinetic energy. (Take the value of $g = 10 \text{ ms}^{-2}$ ) <b>OR</b> If an electric iron of 1200 W is used for 30 minutes every day, find the electric energy consumed in the month of April.	[2]
35	The graph given below shows the positions of a body at different times. Calculate the speed of the body as it moves from 1. A to B 2. B to C 3. C to D	[3]



36 Observe the following graphical diagram and answer the following questions:

[3]

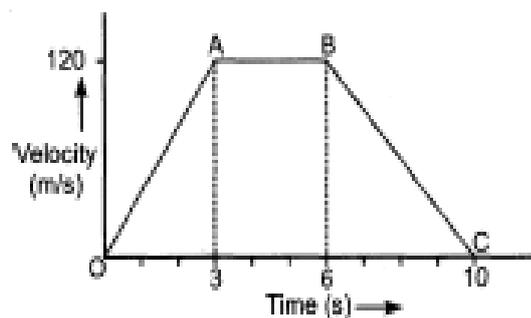


1. What is represented by the graphical diagram shown above?
2. Which wave characteristic determine the pitch of sound?
3. What is the relationship between pitch and frequency?

37 The velocity - time graph of an object of mass  $m = 50 \text{ g}$  is shown in the figure. Observe the graph carefully and answer the following questions.

[3]

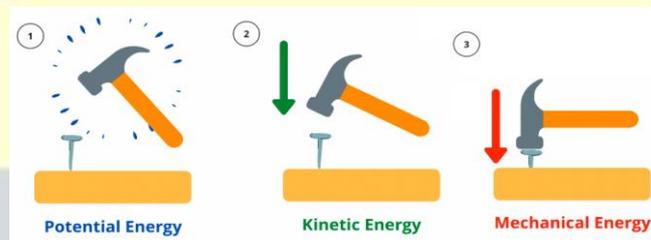
1. Calculate the force on the object in time interval 0 to 3 s.
2. Calculate the force on the object in the time interval 6 to 10 s.
3. Is there any time interval in which no force acts on the object? Justify your answer.



38 Read the following text carefully and answer the questions that follow:

[4]

In physics, work is the energy transferred to or from an object via the application of force along with a displacement. In its simplest form, it is often represented as the product of force and displacement. A force is said to do positive work if (when applied) it has a component in the direction of the displacement of the point of application. A force does negative work if it has a component opposite to the direction of the displacement at the point of application of the force.



- 1.State the law of conservation of energy. (1)
- 2.Define mechanical energy. (1)
- 3.Calculate the energy in kWh consumed in 5 hours by four devices of power 600 W each. (2)

**OR**

Can a body have energy, without having momentum? If yes, why? (2)

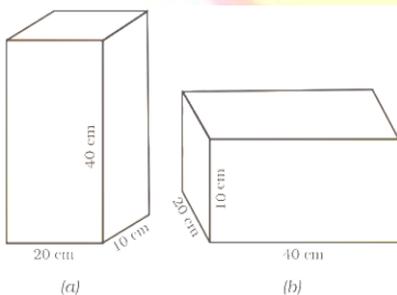
39 A stone is dropped from the edge of a roof.

[5]

- 1.How long does it take to fall 4.9 m?
- 2.How fast does it move at the end of that fall?
- 3.How fast does it move at the end of 7.9 m?
- 4.What is its acceleration after 1s and after 2 s?

**OR**

A block of wood is kept on a tabletop. The mass of the wooden block is 5 kg and its dimensions are 40 cm × 20 cm × 10 cm. Find the pressure exerted by the wooden block on the table top if it is made to lie on the table top with its sides of dimensions



- 1.20 cm × 10 cm and 2.40 cm × 20 cm.