



**Sample Paper I**  
**Half Yearly Examination, 2018-19**  
**Sub: Science**  
**Class – IX**

**Time Allowed: 3 hr.**

**Maximum Marks : 80**

**Name** \_\_\_\_\_

**Sign of Invigilator** \_\_\_\_\_

**GENERAL INSTRUCTIONS:**

- *The question paper comprises of two sections A and B. You are to attempt both the sections.*
- *All questions are compulsory.*
- *All questions of section A and all questions of section B are to be attempted separately*
- *Question number 1 to 2 in section A are one mark questions. These are to be answered in one word or in one sentence*
- *Question number 3 to 5 are two marks questions. These are to be answered in about 30 words each.*
- *Question number 6 to 15 are three marks questions including a value based question. These are to be answered in about 50 words each.*
- *Question number 16 to 21 are five marks questions. These are to be answered in about 70 words each.*
- *Question numbers 22 to 27 in Section-B are Practical based questions. Each question carry two marks.*

**Section-A**

1	What happens when an inflated air balloon is pricked with a pin? Name the property of the gaseous state exhibited by this observation.	1
2	State Newton's Second Law of motion.	1
3	[a] Mention two signs of a healthy animal. [b] Name two Indian cow breeds which show excellent resistance to diseases.	2
4	Which separation techniques will you apply for the separation of the following also state the principle behind the technique used? [a] Sodium chloride from its solution in water. [b] Ammonium chloride and common salt.	2
5	What do you mean by average velocity? Is it a vector quantity?	2
6	A car covers 30 km at a uniform speed of 30 km/h. What should be the speed for the next 90 km if the average speed for the entire journey is 60 km/h?	3
7	It is observed that in the outer space, sound cannot be heard. Why is it so? Can you describe an activity to support your claim?	3

8	In brief state what happens to a living cell when the following organelles are removed: [a] Plasma membrane [b] Ribosomes [c] mitochondria	3
9	[a] Write three characteristics of a eukaryotic cell [b] Lysosomes are a kind of waste disposal system. How do they carry out this job?	3
10	A car of mass 800 kg is travelling with a velocity of 20 m/s. When brakes are applied, it stops after travelling a distance of 8 meters. Find retardation and retarding force.	3
11	[a] Write down the names of compounds represented by following formulae. [i] $Mg(NO_3)_2$ [ii] $NH_4Cl$ [b] Convert 17 g of Carbon dioxide into mole.	3
12	[a] Presence of which chemical in cork cells makes them impervious to water and gases? [b] Which tissue in plants provides them flexibility? [c] Name the muscular tissue that functions throughout life without fatigue.	3
13	Draw well labeled diagram of cardiac muscle.	3
14	[a] Calculate the mass of 7 moles of Potassium atom. [b] Calculate the mass of 0.5 mole of $H_2O$ .	3
15	You are a social worker and an active member of the AIDS awareness group. You have been assigned the job of bring awareness about cause, symptoms, spread and prevention of disease. Write a note which explains all above mentioned points?	3
16	[a] Write short notes on: [i] Organic farming [ii] Vermi-compost [iii] Fertilizers [b] Insects cause a lot of damage to a standing crop. What are the ways in which insects attack plants?	5
17	[a] Sanvi's mother always squeezes water from wet clothes in the spinner of her washing machine and uses it to clean the floor of her house. [i] Name the technique used in the above mentioned process. [ii] Write the principle used in the technique. [iii] Write one more application of this technique.	5

	<p>[b] Argon, Oxygen and Nitrogen are obtained from air by fractional distillation. Liquid air, at <math>-250^{\circ}\text{C}</math>, is warmed up and the gases are collected one by one.</p> <p>[i] Explain why fractional distillation is used rather than simple distillation?</p> <p>[ii] During the distillation, Nitrogen gas is obtained first, then Argon followed by Oxygen.</p> <p>What can you say about the boiling point of these gases?</p>	
18	<p>(a) State the Law of Conservation of Momentum. Write SI unit of momentum.</p> <p>(b) Two cars each of mass 1000 kg are moving in a straight line but in opposite directions. The velocity of each car is 5 m/s before the collision during which they stick together. What will be the velocity of the combined cars after collision?</p>	5
19	<p>Using the idea of particles explain why?</p> <p>[a] Smell of burnt food travels throughout the house.</p> <p>[b] When two solids are placed on the top of each other, they do not mix.</p> <p>[c] For any substance temperature remains constant during change in state.</p> <p>[d] A gas completely fills a vessel in which it is kept.</p> <p>[e] A heap of sand doesn't have a fixed shape yet it is a solid.</p>	5
20	<p>[a] Define the term biogeochemical cycles.</p> <p>[b] Ozone is a poisonous gas, yet has an important for the humans. Why is ozone layer present in upper atmosphere important for us?</p> <p>[c] Oxygen cycle helps to maintain the level of oxygen in the atmosphere. Write about the major sub processes which play an important role in this cycle?</p>	5
21	<p>(a) Using the velocity time graph of a uniformly accelerated object, derive the equation <math>v^2 - u^2 = 2as</math> and <math>v = u + at</math>.</p> <p>(b) A ball is gently dropped from a height of 20 m. If its velocity increases uniformly at the rate of <math>10 \text{ m/s}^2</math>, with what velocity will it strike the ground?</p>	5
	<b>Section-B</b>	
22	<p>Sodium chloride, sugar, egg white and sand are added to water separately in different beakers and the mixtures are stirred well. A suspension will be formed in which case?</p>	2
		2

23	In an experiment to determine boiling point of water, mention two important precautions to be taken?	
24	Mention the sequential steps be taken while preparing a temporary mount of human cheek cells.	2
25	Write the identifying features of parenchyma.	
26	A body is accelerating at a constant rate of $10 \text{ m/s}^2$ . If the body starts from rest, find the distance travelled and the velocity attained after 2 s.	2
27	A motorcar is moving with a velocity of $108 \text{ km/h}$ and it takes 4 s to stop after the brakes are applied. Calculate the force exerted by the brakes on the motorcar if its mass along with the passengers is 1000 kg.	2
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**MARKING SCHEME - SAMPLE PAPER-1  
HALF YEARLY EXAMINATION-2018-19**

**SUB: SCIENCE  
CLASS - IX**

**Section-A**

1	It will burst with a noise and gas molecules will move randomly at high speed.	1
2	The rate of change of momentum of an object is directly proportional to the applied unbalanced force in the direction of force.	1
3	[a] Normal behavior, healthy body. [b] Name two Indian cow breeds which show excellent resistance to diseases.	2
4	[a] Evaporation [b] Sublimation	2
5	Average velocity is given by total displacement upon total time taken. Yes it is a vector quantity.	2
6	Total distance = 30 + 90 = 120 km Total time = $\frac{30}{30} + \frac{90}{x}$ h. Average speed = 60 $\Rightarrow \frac{120}{\frac{30}{30} + \frac{90}{x}} = 60$ x = 90 km/h.	3
7	Sound is a mechanical wave. Hence, it needs medium for its propagation. Refer to page 162 NCERT Textbook	3
8	[a] The contents of the cell will be exposed to external environment. [b] Protein synthesis will be affected. [c] Energy in the form of ATP will not be produced.	3
9	[a] Well defined nuclear region, presence of nuclear membrane, more than one chromosome. [b] They have digestive enzymes which break organic material.	3
10	M = 800 kg; u = 20 m/s ; s = 8 m ; v = 0 m/s Using $v^2 - u^2 = 2as$ , a = -25 m/s <sup>2</sup> (Retardation) Retarding force = M x A = 800 x -25 = -20000 N	3
11	[a]	3

	<p>[i] Magnesium nitrate                                      [ii] Ammonium chloride</p> <p>[b] Molecular mass of Carbon dioxide =44u</p> <p>44g of CO<sub>2</sub> =1 mole</p> <p>17 g of CO<sub>2</sub> =1/44X17=0.38 mole</p>	
12	<p>[a] Suberin</p> <p>[b] Sclerenchyma</p> <p>[c] Cardiac muscle</p>	3
13	Neat drawing and proper labeling.	3
14	<p>[a] 7x 39=273g</p> <p>[b] 18x0.5g=9g.</p>	3
15	<p>[a] Group of medicines that block the biochemical pathways important for bacteria.</p> <p>[b] They block biochemical pathways.</p> <p>[c] Cause-HIV and preventive measures-avoid sexual contact, blood transfusion from an infected person, pregnancy of an infected female.</p>	3
16	<p>[a] Write short notes on:</p> <p>[i] Using minimal chemicals and maximum biological wastes.</p> <p>[ii] Composting with help of worms.</p> <p>[iii] Chemicals that increase crop production.</p> <p>[b] Bore or cut stem ,leaves, fruits. Suck cell sap.</p>	5
17	<p>[a]</p> <p>[i] Centrifugation</p> <p>[ii] Denser particles move to the bottom and lighter particles stay at the top.</p> <p>[iii] Separating cream from milk.</p> <p>[b]</p> <p>[i] Difference in the boiling points is less than 25K.</p> <p>[ii] Nitrogen gas is obtained first, then Argon followed by Oxygen depending upon their boiling points.</p>	5
18	(a) In an isolated system, the total momentum remains conserved / The sum of momenta of the two objects before collision is equal to the sum of momenta after collision provided that there is no net external force. SI unit of momentum is kg.m/s.	5

	<p>(b) <math>m_1 = 1000 \text{ kg}</math> ; <math>m_2 = 1000 \text{ kg}</math>  <math>U_1 = 5 \text{ m/s}</math> ; <math>U_2 = -5 \text{ m/s}</math>(opposite directions)  <math>V = ?</math>  According to law of conservation of momentum  <math>M_1U_1 + M_2U_2 = (M_1V_1 + M_2V_2)</math>  Common velocity implies <math>V_1 = V_2 = V</math>  <math>V = 0 \text{ m/s}</math></p>	
19	<p>[a] Diffusion ,intermixing of particles.  [b] Diffusion is least in solids. It is superficial.  [c]Energy is used for breaking of bonds.  [d]Molecules are constantly moving.  [e]Single grain is a solid.</p>	5
20	<p>[a] Interaction between biotic and abiotic components of nature.  [b] Prevents ultraviolet rays from hitting the earth.  [c]photosynthesis, respiration.(Detailed account).</p>	5
21	<p>(a) Refer page 108, 109 NCERT Textbook  (b) <math>H = 20 \text{ m}</math> ; <math>a = 10 \text{ m/s}^2</math> ; <math>u = 0</math>  Using <math>v^2 - u^2 = 2as</math>  <math>V = 20 \text{ m/s}</math></p>	5
	<b>Section-B</b>	
22	Sand and water.	2
23	<p>a) Note the temperature by keeping the bulb above the level of water.  b) Note the temperature by keeping eyes in line with the level of mercury.</p>	2
24	<p>a) Took pick should be sterilized.  b) Scrape the inner surface of the check gentle without any cut.  c) Stain the material on the same slide and cover it with a clean cover slip</p>	2
25	Thin cell wall , unspecialized cells, loosely packed cells, large spaces between cells.	

26	$A = 10 \text{ m/s}^2$ ; $u = 0 \text{ m/s}$ ; $t = 2 \text{ s}$ . $S = ?$ ; $V = ?$ $V = U + A \cdot t \Rightarrow V = 20 \text{ m/s}$ $S = ut + (\frac{1}{2})at^2$ ; $s = 20 \text{ m}$	2
27	$u = 108 \text{ km/h} = 30 \text{ m/s}$ ; $v = 0 \text{ m/s}$ ; $t = 4 \text{ s}$ mass = 1000 kg $F = m (v-u)/t$ $F = -7500 \text{ N}$	2
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