 MACRO VISION ACADEMY BURHANPUR	Sample Paper-I (2026-27)		For Office Use Only
	Class:	X	
	Time:	03:00 Hrs.	
	M.M:	80	

Personal Information

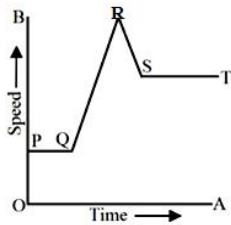
Student's Name:- _____ **Father's Name:-** _____

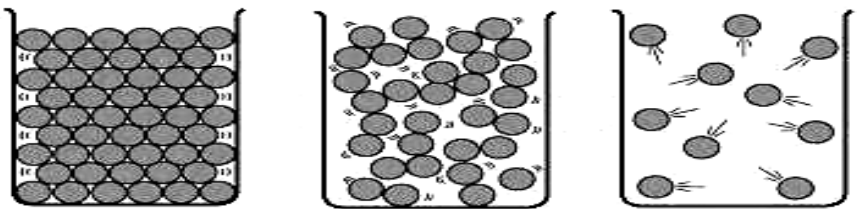
City:- _____ **Mobile No:-** _____ **Exam Date:-** / / 2026

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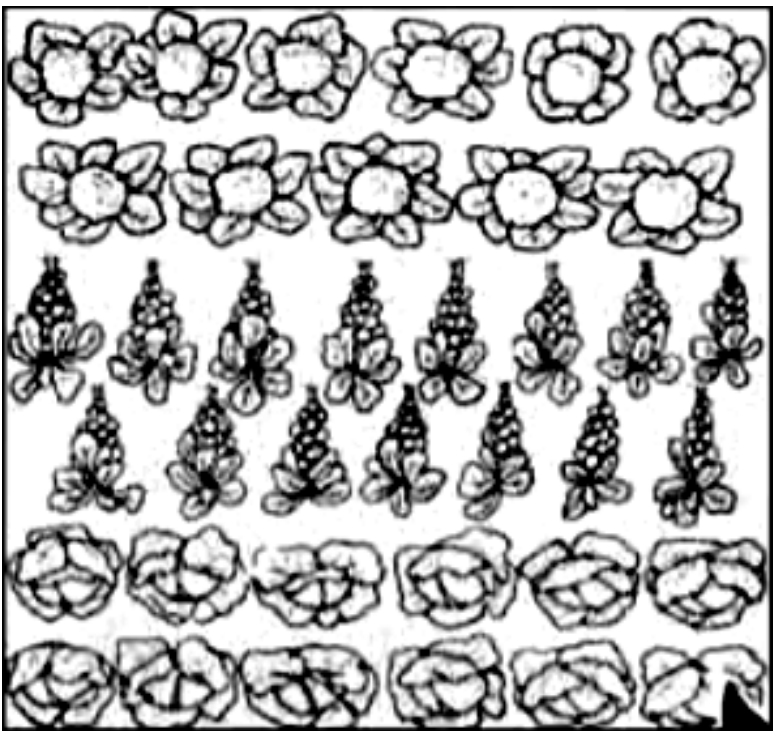
Present School Name:- _____ **Category:-** _____

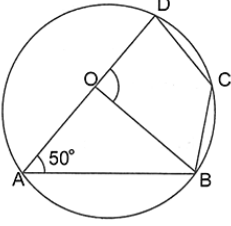
Physics (10)	Chemistry (10)	Biology (10)	Mathematics (25)	Hindi (05)	English (10)	MAT (10)	Total (80)	Remark

	Physics (10)	MM
	Choose the correct answer. (Q. 1 and 2)	
1.	A passenger in a moving train, tosses a coin that falls behind him. It means that the motion of the train is- (a) Accelerated (b) Uniform (c) Retarded (d) Along circular tracks	1
2.	The power of a moving object is stored in the form of (a) Force and time (b) Force and distance (c) Force and velocity (d) Work and distance	1
	Case Study (Q. 3 and 4): A group of students went on a school trip to the mountains. While shouting their names near a cliff, they noticed that their voice returned after a short interval. The teacher explained that this was due to the reflection of sound from the cliff surface.	
3.	What phenomenon of sound is observed in this situation?	1
4.	If the echo was heard after 4 seconds, and the speed of sound is 340 m/s, calculate the distance of the cliff from the students.	1
5.	In the speed-time graph for a moving object shown here, the part which indicates uniform deceleration of the object is: 	1

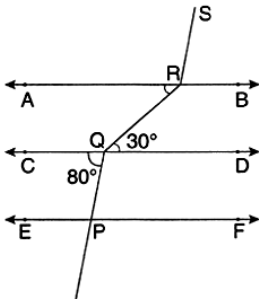
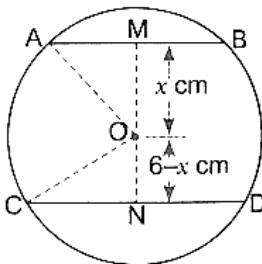
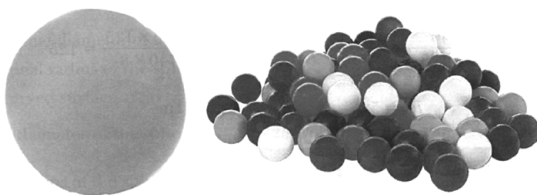
	Question Based on Reason & Assertion. (Q. 6 and 7) (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A). (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A) (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true.	
6.	Assertion (A): Echo is the repetition of sound due to reflection by a large and hard obstacle. Reason (R): To hear a distinct echo, the time gap between the original and reflected sound must be at least 0.1 seconds.	1
7.	Assertion (A): Mass is a measure of inertia of the body in linear motion. Reason (R): Inertia is the tendency of a body to resist change in its state of motion.	1
8.	What type of wave is produced in the air inside the cup when Anuj speaks?	1
	Fill in the blank. (Q. 9 and 10)	
9.	The motion of a freely falling body under gravity is an example of _____ accelerated motion.	1
10.	A car of mass 1500 kg is moving with a velocity of 60 km/h. The work required to stop it is _____.	1
	Chemistry (10)	
	Choose the correct answer. (Q. 11 and 12)	
11.	The formula of a compound is X_3Y_2 . The valencies of X and Y are _____. (a) 1 and 2 (b) 1 and 3 (c) 3 and 2 (d) 2 and 3	1
12.	The formula of aluminium chloride is _____. (a) Al_3Cl (b) $AlCl$ (c) $AlCl_3$ (d) $AlCl_3$	1
	Case Study (Q. 13 and 14): It is observed that atoms of elements having a completely filled outermost shell with 8 electrons show very little or no chemical activity. In other words, the combining capacity or valency of such elements is zero. The combining capacity of the atoms of elements, i.e, their tendency to react and form molecules is an attempt to attain a fully-filled outermost shell. Atoms would thus react to achieve an octet in the outermost shell. This is done by sharing, gaining or losing electrons.	
13.	Write the chemical formula of sodium carbonate and aluminium sulphate.	1
14.	Write the electronic configuration of the element having atomic number 16.	1
15.	Which of the following picture represents the arrangement in liquid? <div style="text-align: center;">  </div>	1

	Question Based on Reason & Assertion. (Q. 16 and 17) (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A). (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A) (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true.	
16.	Assertion (A): K shell is nearest to the nucleus and has the highest energy. Reason (R): K shell can accommodate a maximum of two electrons.	1
17.	Assertion (A): Isotopes of an element have the same number of protons but different numbers of neutrons. Reason (R): Isotopes have different mass numbers but the same atomic number.	1
18.	What is law of conservation?	1
	Fill in the blank. (Q. 19 and 20)	
19.	Atoms combine in the ratio of small whole numbers to form _____.	1
20.	_____ isotope is taken as the standard reference for measuring atomic mass.	1
	Biology (10)	
	Choose the correct answer. (Q. 21 and 22)	
21.	Which statement not correctly describes the function of epidermal cells of root (a) To protect the root from the invasion against parasites (b) To provide strength to roots so that it can combat abiotic stresses (c) To increase the surface area for absorption of water. (d) None of the above	1
22.	Cardiac muscle is one of the three major types of muscles, the others being Skeletal and smooth muscles. It is found in the walls and histological foundation of the heart. Which one of the following statements is not related to the cardiac muscles? (a) They muscles show rhythmic contraction and relaxation throughout life. (b) They do not work according to our will, so they are called involuntary muscles. (c) They are non-striated, multinucleated and branched muscles. (d) The contraction and relaxation of the heart muscles help to pump and distribute blood to different parts of the body.	1
	Case Study (Q. 23 and 24): Rohan is a curious student observing cells under a high-power microscope in his school biology lab. He notices that the cell is not just a simple structure but a highly organized unit with several distinct compartments called organelles. Each organelle seems to have a specific task, much like workers in a factory. For example, he observes tiny structures 'A' which are busy producing proteins necessary for the cell's growth and repair. Nearby, thread-like structures 'B' appear to be actively converting nutrients into energy in the form of ATP, which powers various cellular activities. He also notices that the factory contain storage	

	tank which store water, nutrients, and waste products. The cytoplasm serves as the fluid medium where all these organelles float and interact. Rohan realizes that the cell functions efficiently because of the division of labor among organelles, similar to a well-run factory where each worker has a defined role.	
23.	Identify the structure A and B	1
24.	Name two type of cells on basis of their nuclear material.	1
25.	Picture given below comes under which category of crop Improvement programme. 	1
	Question Based on Reason & Assertion. (Q. 26 and 27) (a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A). (b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A) (c) Assertion (A) is true but reason (R) is false. (d) Assertion (A) is false but reason (R) is true.	
26.	Assertion (A): Vascular or conductive tissue is a distinctive feature of complex plants. Reason (R): Vascular tissue has made survival of complex plants possible in terrestrial environment	1
27.	Assertion (A): Vermicomposting is an eco-friendly way to enrich soil. Reason (R): Earthworms decompose inorganic waste into nutrient-rich manure.	1
28.	Explain why plant cells are more rigid than animal cells.	1
	Fill in the blank. (Q. 29 to 30)	
29.	The network of membranes involved in protein and lipid synthesis is _____.	1
30.	_____ are dead, rigid cells that provide mechanical support to plants, while _____ tissue helps in transport of food.	1

	Maths (25)	
	Choose the correct answer. (Q. 31 to 35)	
31.	<p>Which of the following is true about $x = 0.\overline{6}$?</p> <p>(a) x is a rational number because x can be written in the form $\frac{p}{q}$ by solving the equation $10x = 6 + x$.</p> <p>(b) x is a rational number because x can be written in the form $\frac{p}{q}$ by solving the equation $10x = 6 - x$.</p> <p>(c) x is an irrational number because x can be written in the form $\frac{p}{q}$ by solving the equation $10x = 6 + x$.</p> <p>(d) x is an irrational number because x can be written in the form $\frac{p}{q}$ by solving the equation $10x = 6 - x$.</p>	1
32.	<p>The value of $249^2 - 248^2$</p> <p>(a) 1^2 (b) 477 (c) 487 (d) 497</p>	1
33.	<p>Sanjay claims that (4, 3) is one of the solutions of the equation $2x - y + 3 = 5$. Is sanjay's claim correct?</p> <p>(a) Yes, as $2(4) - 3 + 3$ simplifies to 5 and 5 is also the number on the right-hand side of the equation.</p> <p>(b) Yes, as $2(3) - 4 + 3$ simplifies to 5 and 5 is also the number on the right-hand side of the equation.</p> <p>(c) No, but replacing 5 in the given equation with 8 will result in the equation having (4, 3) as one of its solutions.</p> <p>(d) No, but replacing 5 in the given equation with 3 will result in the equation having (4, 3) as one of its solutions.</p>	1
34.	<p>Which of the following statements are true about frequency polygons?</p> <p>(i) They are constructed using mid-points of class intervals.</p> <p>(ii) The area of frequency polygon is equal to the area of histogram.</p> <p>(iii) They can be used to compare multiple distributions.</p> <p>(a) (i) and (ii) (b) (i), (ii) and (iii) (c) (i) and (iii) (d) None of above</p>	1
35.	<p>In Fig. O is the centre of a circle and $\angle OAB = 50^\circ$ then, $\angle BOD$ equals</p>  <p>(a) 50° (b) 80° (c) 100° (d) 130°</p>	1

	Fill in the Blank. (Q. 36 to 42)																			
36.	The greatest chord of a circle is called its _____.	1																		
37.	If A(-2, 3) and B (-3, 5) are two given points then (abscissa of A) – (abscissa of B) = _____.	1																		
38.	The base of a right triangle is 48 cm and its hypotenuse is 50 cm long. The area of the triangle is _____.	1																		
39.	$(3\sqrt{5} - 5\sqrt{2})(4\sqrt{5} + 3\sqrt{2}) =$ _____.	1																		
40.	If the angle $(2x - 10)^\circ$ and $(x - 5)^\circ$ are complementary angles, then the value of x is _____.	1																		
41.	If $\left(\sqrt{\frac{3}{5}}\right)^{x+1} = \frac{125}{27}$, then $x =$ _____.	1																		
42.	If the length of a median of an equilateral triangle is x cm, then its area is _____.	1																		
	Answer the questions based on given information. (Q. 43 to 46) Sodium silicate is one of the constituents in liquid soap. The graph shows the amount of sodium silicate in liquid soap. <div style="text-align: center;"><table style="margin: 10px auto;"><caption>Data points from the graph</caption><tr><th>Liquid soap (in mL)</th><th>Sodium silicate (in mL)</th></tr><tr><td>1000</td><td>100</td></tr><tr><td>2000</td><td>200</td></tr><tr><td>3000</td><td>300</td></tr></table></div>	Liquid soap (in mL)	Sodium silicate (in mL)	1000	100	2000	200	3000	300											
Liquid soap (in mL)	Sodium silicate (in mL)																			
1000	100																			
2000	200																			
3000	300																			
43.	How much sodium silicate (ml) is used for making 10L of soap? (a) 100 (b) 110 (c) 1000 (d) 10000	1																		
44.	Write an equation to show the relation between quantities of sodium silicate and liquid soap.	1																		
	The table given below shows the number of students in Sunn Valley School. <table style="margin: 10px auto;"><tr><th>Class</th><th>Number of Girls</th><th>Number of Boys</th></tr><tr><td>VI</td><td>18</td><td>22</td></tr><tr><td>VII</td><td>17</td><td>15</td></tr><tr><td>VIII</td><td>20</td><td>19</td></tr><tr><td>IX</td><td>15</td><td>19</td></tr><tr><td>X</td><td>17</td><td>21</td></tr></table>	Class	Number of Girls	Number of Boys	VI	18	22	VII	17	15	VIII	20	19	IX	15	19	X	17	21	
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VI	18	22																		
VII	17	15																		
VIII	20	19																		
IX	15	19																		
X	17	21																		

45.	<p>Every year, one student is randomly chosen from Class X as the head student. The head student is responsible for representing the school.</p> <p>What is the probability of a girl being the head student?</p> <p>(a) $\frac{17}{21}$ (b) $\frac{17}{38}$ (c) $\frac{17}{87}$ (d) $\frac{17}{183}$</p>	1
46.	<p>All students of Class VI took part in a drawing competition. Aditi is a girl studying in Class VI. The teacher says, "The winner of this year's drawing competition is a boy from Class VI."</p> <p>What is Aditi's probability of having won the competition?</p>	1
Subjective Type Questions (Q. 47 to 51)		
47.	<p>In Fig., $AB \parallel CD \parallel EF$ and $PQ \parallel RS$, $\angle RQD = 30^\circ$ and $\angle CQP = 80^\circ$. Find $\angle QRS$</p> 	1
48.	<p>Two chords AB and CD of lengths 5 cm and 11 cm respectively of a circle are parallel to each other and are on opposite sides of its centre. If the distance between AB and CD is 6 cm, find the radius of the circle</p> 	1
49.	<p>If the radius of a sphere is doubled, what is the ratio of the volume of the first sphere to that of the second sphere?</p>	1
50.	<p>If $x + \frac{1}{x} = 5$, find the value of $x^4 + \frac{1}{x^4}$.</p>	1
51.	<p>Show that the diagonals of a square are equal.</p>	1
<p>Case Study (Q. 52 to 55): Akshita is fond of playing with clay. It develops coordination and motor skills and builds imagination. She made a big ball with all the clay available with her.</p>  <p>Based on the above information answer the following questions.</p>		

52.	What is the volume of the clay she had if the radius of the ball formed is 9 cm?	1
53.	Akshita can reshape the clay into small balls each of radius 1.5 cm. What is the number of balls formed?	1
54.	Find the surface area of each of the small ball.	1
55.	Find the curved surface area of a hemisphere of radius '3x'.	1
Hindi (05)		
56.	निम्नलिखित विषयों में से किसी एक विषय पर अनुच्छेद लिखिए। (क) कृत्रिम बौद्धिकता (AI) के बढ़ते कदम (ख) पुस्तकें पढ़ने की आदत	3
57.	निम्नलिखित वाक्यों को शुद्ध करके लिखिए। (क) चारों बेटों का नाम बताओ। (ख) वह छत पर से गिर पड़ा।	2
English (10)		
Read the following text. 1. In today's fast-paced, hyper-connected world, multitasking is often glorified as a skill necessary for success. From students juggling school assignments while checking notifications, to professionals switching between meetings, emails, and deadlines, multitasking seems not only inevitable but desirable. However, scientific research suggests that multitasking is more illusion than reality. Rather than performing multiple tasks simultaneously, the human brain is rapidly switching between them—often at a cognitive cost. 2. Studies in neuroscience have shown that multitasking actually reduces efficiency and increases errors. When people switch from one task to another, their brains must readjust, a process known as "context switching." Each switch demands time and mental energy, which cumulatively impairs performance. According to Dr. Clifford Nass of Stanford University, heavy multitaskers often have trouble filtering irrelevant information, organizing their thoughts, and remembering important details. Paradoxically, those who multitask the most are often the least effective at doing so. 3. The myth of multitasking is deeply embedded in modern culture. Job descriptions praise the "ability to multitask under pressure," and digital natives are celebrated for their supposed ability to manage multiple streams of information. But this cultural narrative overlooks the long-term consequences: decreased attention span, shallow thinking, and reduced capacity for deep focus. 4. That said, it would be unrealistic to advocate for complete monotasking in an interconnected world. The key, perhaps, lies in mindful task management. Instead of switching tasks every few minutes, people might benefit from setting clear time blocks for focused work, followed by intentional breaks. Tools such as the Pomodoro Technique or digital well-being apps encourage such structured concentration. 5. Multitasking may offer the illusion of productivity, but in reality, it fragments our attention and diminishes our capacity to think deeply. As our lives become more digital, learning how to concentrate may become a more valuable skill than juggling multiple tasks at once. Based on your reading of the above passage, answer the following questions.		

58.	<p>What is the author's primary claim about multitasking?</p> <p>(a) It is a skill only digital natives possess.</p> <p>(b) It is necessary for survival in modern life.</p> <p>(c) It improves productivity and mental agility.</p> <p>(d) It is a misleading concept that harms efficiency.</p>	1														
59.	<p>According to Dr. Clifford Nass, heavy multitaskers:</p> <p>(a) Perform better under pressure than monotaskers.</p> <p>(b) Have difficulty organizing thoughts and filtering information.</p> <p>(c) Prefer traditional forms of communication.</p> <p>(d) Excel in managing multiple tasks efficiently.</p>	1														
60.	<p>Which of the following best describes the tone of the passage?</p> <p>(a) Sarcastic and dismissive. (b) Optimistic and encouraging.</p> <p>(c) Neutral and factual. (d) Critical but balanced.</p>	1														
<p>Read the following text.</p> <p>1. Access to education and literacy rates have improved significantly worldwide over the past few decades, yet disparities persist across regions and socio-economic groups. Education is recognized as a fundamental human right and a key driver of sustainable development, empowering individuals and fostering economic growth.</p> <p>2. According to UNESCO data, global literacy rates among adults (aged 15 and above) rose from approximately 76% in 1990 to 86% in 2020. Despite this progress, regions such as Sub-Saharan Africa and South Asia still report adult literacy rates below 70%. These disparities are influenced by factors including poverty, gender inequality, political instability, and insufficient educational infrastructure.</p> <p>3. School enrollment rates at the primary and secondary levels have similarly increased. However, completion rates and quality of education remain concerns. For example, many children enrolled in school do not complete secondary education, particularly in low-income countries.</p> <p>4. The COVID-19 pandemic caused unprecedented disruptions, with over 1.6 billion learners affected by school closures worldwide in 2020. Remote learning technologies provided alternatives, but access to digital resources varied greatly, exacerbating educational inequalities.</p> <p>5. Efforts to improve education outcomes include expanding access to early childhood education, investing in teacher training, and implementing inclusive policies for marginalized groups. International initiatives like the Sustainable Development Goal 4 (SDG 4) aim to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” by 2030.</p> <p>Table: Adult Literacy Rates by Region (2020)</p> <table> <tr> <th>Region</th><th>Literacy Rate (%)</th></tr> <tr> <td>North America</td><td>99</td></tr> <tr> <td>Europe</td><td>98</td></tr> <tr> <td>East Asia & Pacific</td><td>95</td></tr> <tr> <td>Latin America</td><td>93</td></tr> <tr> <td>South Asia</td><td>68</td></tr> <tr> <td>Sub-Saharan Africa</td><td>65</td></tr> </table> <p>Based on your reading of the above passage, answer the following questions.</p>			Region	Literacy Rate (%)	North America	99	Europe	98	East Asia & Pacific	95	Latin America	93	South Asia	68	Sub-Saharan Africa	65
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North America	99															
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61.	Which regions had adult literacy rates below 70% in 2020? (a) North America and Europe (b) East Asia & Pacific and Latin America (c) South Asia and Sub-Saharan Africa (d) Europe and Latin America	1
62.	According to the passage, what is one key focus of SDG 4? (a) Increasing fossil fuel use (b) Ensuring equitable quality education for all (c) Reducing urbanization (d) Promoting privatization of schools	1
63.	Which factor does NOT contribute to disparities in literacy rates? (a) Poverty (b) Gender inequality (c) Political instability (d) Socio-economic factors	1
64.	You are Ramesh/ Ritu, a resident of Green Valley colony. For the last several months, the residents have been facing irregular water supply, leading to severe inconvenience. Write a letter to the Municipal Commissioner, highlighting the issue and suggesting solutions like proper pipeline maintenance, water tankers, rainwater harvesting system (80-100 words). OR You are Priya/Pranav, a resident of Sector 15, Chandigarh. Write a letter to the Traffic Police Officer complaining about traffic congestion near your school. Suggest placing traffic signals and deploying a traffic constable during peak hours. (80-100 words).	4
MAT (10)		
Solve the question based on general intelligence. (Q. 65 to 74)		
65.	If every letter in a word is replaced by the letter two positions earlier in the alphabet (A→Y, B→Z, C→A ...), how is PENCIL coded? (a) NCLAGJ (b) NCBKHI (c) NCJAGJ (d) NCLAGK	1
66.	In a code the word TRADE is written as USCFG. Using the same rule, how can PLANT be written? (a) QMBOV (b) QMCPV (c) QMCPO (d) QNCPV	1
67.	3, 6, 11, 18, 27, ____ (a) 34 (b) 36 (c) 38 (d) 40	1
68.	2, 6, 18, 54, ____ (a) 108 (b) 162 (c) 216 (d) 120	1
69.	M is the brother of N. P is the daughter of M. Q is the mother of N. How is Q related to P? (a) Mother (b) Aunt (c) Grandmother (d) Sister	1
70.	X is the son of Y. Z is the daughter of Y. W is the son of Z. How is W related to X? (a) Son (b) Nephew (c) Cousin (d) Brother	1

71.	<p>A person walks 8 km East, 6 km North, then 8 km West. How far and in which direction is he from the starting point?</p> <p>(a) 6 km North (b) 6 km East (c) 10 km North-East (d) Back to starting point</p>	1
72.	<p>Starting from home he walks 7 km North, then 24 km East, then 7 km South. Where is he now relative to his starting point?</p> <p>(a) 24 km East (b) 10 km East (c) 24 km West (d) Back to start</p>	1
73.	<p>Choose the alternative which is closely resembles the mirror image of the given combination.</p> <p>ANS43Q12</p> <p>(1) AN243Q12 (2) S1Q342NA (3) 2NA34Q12 (4) 12Q34AN2</p> <p>(a) 1 (b) 2 (c) 3 (d) 4</p>	1
74.	<p>Solve the riddle.</p> <p>I speak without a mouth and hear without ears. I have no body, but I come alive with wind. What am I?</p> <p>(a) Whisper (b) Echo (c) Shadow (d) Voice recorder</p>	1
