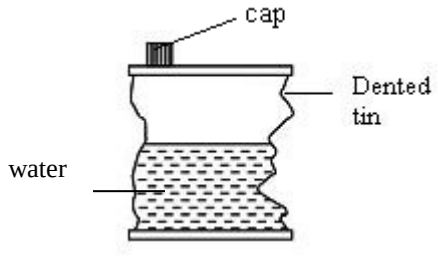
Chapter 13 Air Pressure

Paper 1
Answer **all** *questions. Each question is followed by four options,* **A**, **B**, **C** *and* **D**. *For each question, choose* **one** *answer only.*

1.



The hot tin becomes dented when cold water was poured onto it. Which of the following causes the occurrence?

A Air pressure outside the tin has compressed it
B The volume of water in the tin has decreased
C Air pressure inside the tin has increased
D Air pressure outside the tin has decreased

2. The gas pressure in a container increases when the
A gas is cooled
B volume of the container is reduced
C number of gas particles decreases
D volume of the container is increased

3. Among the following appliances, which does **not** work on the principle of air pressure?
A Syringe
B Sucker hook
C Thermometer
D Drinking straw

4. Which of the following is **not** kept under high pressure?
A Perfume
B Cylinder gas
C Refrigerator
D Insecticide

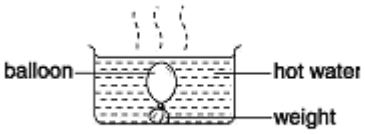
5. When using gas under high pressure, the safety measures that need to be taken include
I gas cylinder should be kept far away from heat source
II gas cylinder should not be placed in an enclosed place
III gas cylinder must always be put in an upright position

A I only

B I and II only
C II and III only
D I, II, and III

6. Which of the following can change a gas to a liquid state?
A Heat it in water bath
B Put it in a bigger container
C Heat it with strong flame
D Compress it under high pressure

7.



The activity in the diagram above is carried out to study the factor that affects air pressure. What will be observed at the end of activity?

A The balloon contracts
B The balloon expands
C The balloon floats on the surface of water
D The water diffuses into the balloon

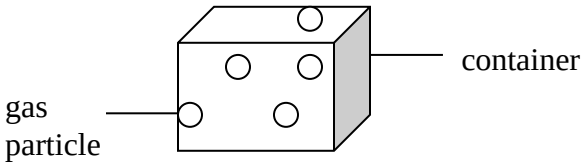
8. Which of the following statements is **true** about air pressure?

A Acts in all directions
B Fixed at all places on the Earth
C Is not affected by heat
D High at the top of a mountain

9. The collision of gas particles on the walls of a container produces

A sound energy
B potential energy
C gas pressure
D frictional force

10.



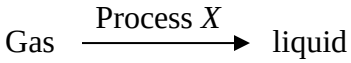
Which of the following can be done to increase the air pressure in the container in the diagram above?

A Heat the container
B Immerse the container in cold water
C Decrease the number of gas particles
D Add a few drops of concentrated acid onto the container

11. A dented ping-pong ball can become spherical again if it is

A put into cold water
B hit strongly
C pressed hardly
D put into hot water

12.



A gas can be changed into liquid through process *X*. What is process *X*?

A Freezing
B Heating
C Cooling
D Sublimation

13. Which of the following principles can be applied to push out the dirt that clogs in a pipe connected to a sink?

A Buoyancy
B Floating
C Air pressure
D Water pressure

14. Factors that influence air pressure include

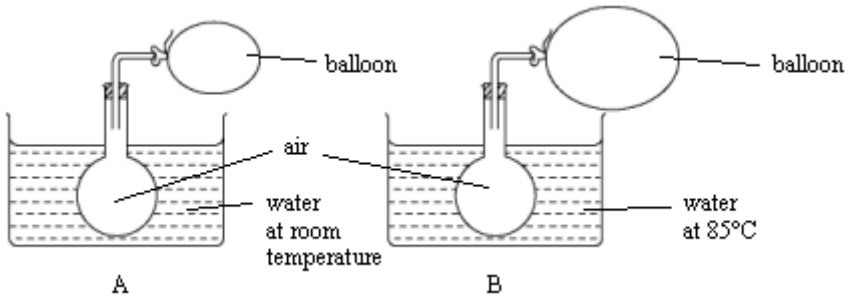
I volume of gas
II density of gas
III mass of gas
A I and II only
B I and III only

C II and III only
D I, II, and III

15. Which of the following can be used to check for leaks along gas tubes and connections?

A Fire
B Soap solution
C Water
D Alcohol

Paper 2
Answer the question.



An experiment was carried out using the apparatus shown in the figure above. The following steps were also carried out.

S1 A balloon was attached to a flask. The flask was placed in a beaker of water at room temperature as shown in Set *A*.
S2 The size of the balloon was recorded after five minutes.
S3 Another similar balloon was attached to another flask. This flask was placed in a beaker filled with water at 85°C as shown in Set *B*.
S4 The size of the balloon was recorded after five minutes.

(a) State the relationship between the temperature of water and the size of balloon.

_____

(b) State the variables involved in this experiment.

Manipulated variable	
Responding variable	
Constant variable	

(c) Record the results of the experiment in the table below.

	Size of balloon
Set A	(i)
Set B	(ii)

(d) Explain the results in (b).

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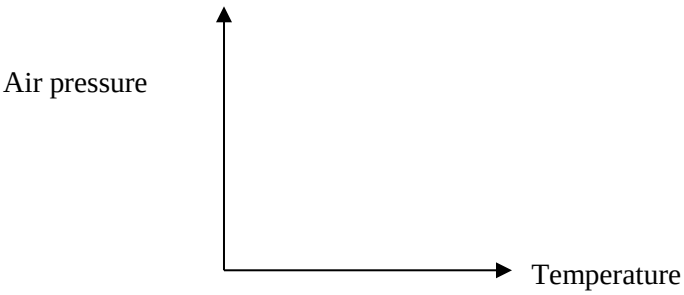
(e) Draw a graph to show how air pressure changes as the temperature of the water increases.



Answers:

Paper 1

1	**A**	11	**D**
2	**B**	12	**C**
3	**C**	13	**C**
4	**C**	14	**B**
5	**D**	15	**B**
6	**D**		
7	**B**		
8	**A**		
9	**C**		
10	**A**		

Paper 2

(a) The higher the water temperature, the bigger the size of balloon.

(b) Manipulated variable: Temperature of air
Responding variable: Size of balloon
Constant variable: Size of flask / Type of balloon

(c) (i) Smaller
(ii) Bigger

(d) Under warm conditions, air particles inside balloon in set *B* will receive more energy and move faster, and collide more frequently with the wall of balloon. Thus, higher pressure is exerted.

(e)