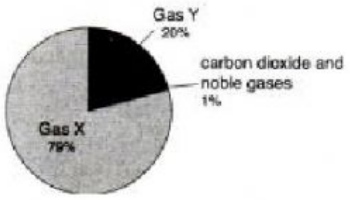
CHAPTER 10: GASES

TOPIC 10.1: GASES IN THE AIR

1. Air consists of high percentage of nitrogen. **TRUE / FALSE**
(SPE/2013/Q42b)

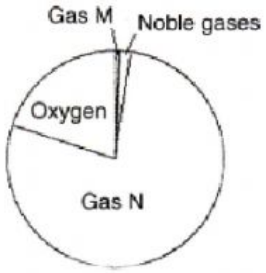
2. Figure below shows the composition of air. What are Gas X and Y?
(SPE/2010/Q34)

	Gas X	Gas Y
A.	Oxygen	Nitrogen
B.	Nitrogen	Water vapour
C.	Oxygen	Hydrogen
D.	Nitrogen	Oxygen



3. Figure below shows the composition of air. What is the percentage composition of gas M and N?
(SPE/2017/Q21)

	Gas M	Gas N
A.	0.03 %	21 %
B.	0.03 %	78 %
C.	21 %	0.03 %
D.	78 %	0.03 %



TOPIC 10.2: PROPERTIES OF GASES

1. Water vapour turns dry cobalt chloride paper from pink to blue. **TRUE / FALSE**
(SPE/2009/Section B Q2d)

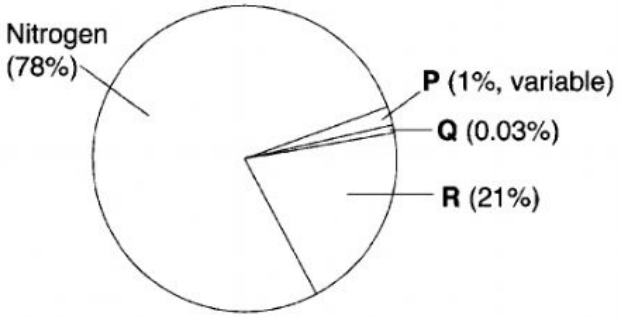
2. Complete the following passage by using the helping words provided. You may use the word once, more than once or none at all. [5]
(SPE/2016/Q41)

mixture	**0.05%**	**orange**	**compounds**	**oxygen**
glowing	**lighted**	**nitrogen**	**white**	**1%**

Air is a _____ of gases. The constituents in air are 78% of nitrogen, 21% of oxygen, 0.03% of carbon dioxide, _____ % of noble gases and water vapour. The proportion of water vapour in the air varies from place to place. Noble gases are unreactive gases. Other unreactive gas present in the air is _____. The

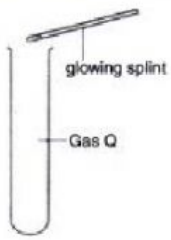
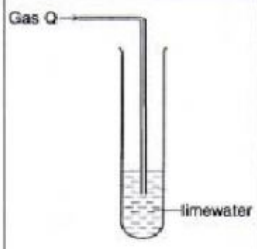
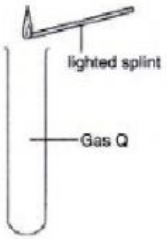
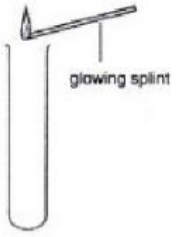
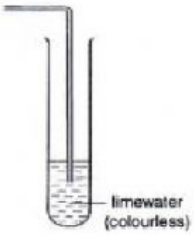
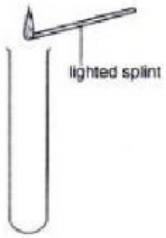
presence of oxygen will rekindle a _____ splint. The presence of carbon dioxide can be tested using lime water. The lime water forms a _____ precipitate when carbon dioxide is present.

3. The pie-chart in Figure below shows the percentages of four gases in the atmosphere. (SPE/2011/Q31)



	Gas P	Gas Q	Gas R
A.	Clear lime water turns white precipitate	Relights a glowing splint	Blue cobalt chloride paper turns pink
B.	Relights a glowing splint	Blue cobalt chloride paper turns pink	Clear lime water turns chalky
C.	Blue cobalt chloride paper turns pink	Clear lime water turns white precipitate	Relights a glowing splint
D.	Blue cobalt chloride paper turns pink	Relights a glowing splint	Produces a 'pop' sound with a burning splint

4. Khairul carried out three tests shown in figure below to determine the identity of gas Q.

Tests	1	2	3
			
Observation			
	Glowing splint relight	Limewater stays colourless	No pop sound is heard

What is gas Q?
(SPE/2015/Q28)

A. Carbon dioxide.
B. Hydrogen.
C. Nitrogen.
D. Oxygen.

5. Three tests were carried out on a colourless gas and the results are shown in Figure below.
(SPE/2012/Q29)

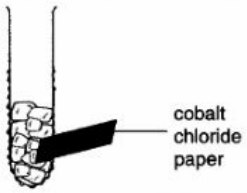
	Test	Observation
1.	Glowing splint	Glow is extinguished (goes out)
2.	Lime water	Does not turn lime water white precipitate
3.	Cobalt chloride paper	Changes from blue to pink

From the observations, it can be concluded that the gas is _____.

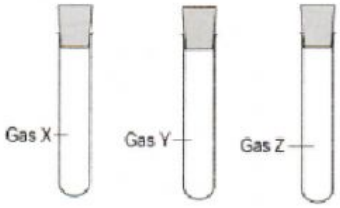
A. carbon dioxide.
B. hydrogen.
C. oxygen.
D. water vapour.

6. The cobalt chloride paper shown in Figure below is used to test for the presence of water vapour. Which colour change best describes the presence of water vapour? (SPE/2014/Q25)

A. Blue → Pink
B. Blue → Red
C. Pink → Blue
D. Red → Blue



7. Nina carried out an investigation on three different gases labelled X, Y and Z.



She performed Test 1, 2, 3 and 4 and recorded her observations in table below.

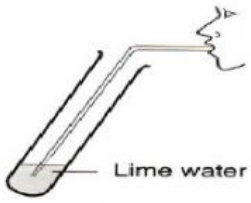
Test	Action taken	Gas X	Gas Y	Gas Z
Test 1	Test with burning splint	Pop sound heard	No reaction	No reaction
Test 2	Test with cobalt chloride paper	No colour change	Turns pink	No colour change
Test 3	Test with limewater	No reaction	No reaction	White precipitate
Test 4	Test with lighted splint	No reaction	No reaction	No reaction

Based on the results in table below, which of the following correctly identifies the three different gases?
(SPE/2017/Q24)

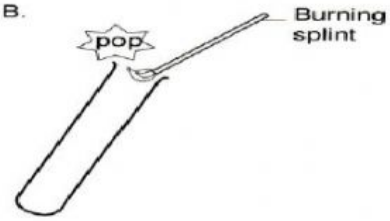
	Gas X	Gas Y	Gas Z
A.	Carbon dioxide	Hydrogen	Oxygen
B.	Hydrogen	Oxygen	Water vapour
C.	Hydrogen	Water vapour	Carbon dioxide
D.	Water vapour	Hydrogen	Carbon dioxide

8. Which one of the following is the identification test for carbon dioxide gas? (SPE/2018/Q26)

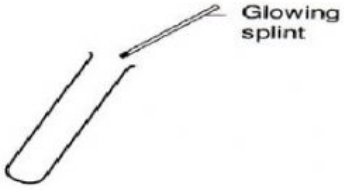
A.



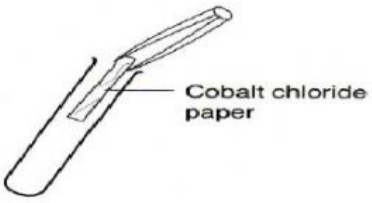
B.



C.



D.



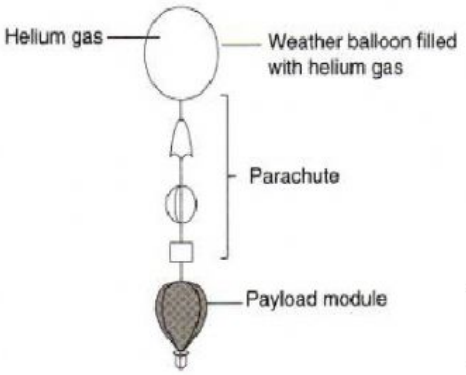
9. Which of the following noble gases is commonly used in colourful advertisement signs? (SPE/2009/Q25)

A. Argon.
B. Neon.
C. Xenon.
D. Helium.

10. Figure below shows a gas jar containing gas Y. And Gas Y is a noble gas. Which statement about Y is correct. (SPE/2015/Q27)

A. Y makes up 78% of air.
B. Y is unreactive.
C. Y relights a glowing splint.
D. Y supports combustion.

11. Figure below shows a weather balloon that is filled up with helium gas. Which of the following properties help to explain the use of helium in weather balloons? (SPE/2017/Q22)



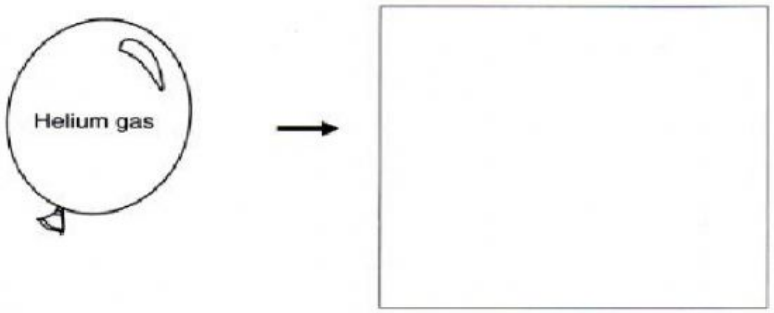
A. Helium gas is colourless and odourless.
B. Helium gas is the 2nd lightest gas.
C. Helium gas is insoluble in water.
D. Helium gas is highly flammable.

12. Which of the following gives two uses of nitrogen? (SPE/2017/Q23)

A. Advertising signs and making margarine.
B. Advertising signs and party balloons.
C. Preserving food and making fertilizers.
D. Preserving food and as dry ice.

13. Helium gas is used in party balloons as shown below. (SPE/2013/Q44cii, iii & iv)

a) Draw what happens to the party balloon filled with helium after one day.



At birthday party **After 1 day**

b) What has happened to the helium as inside the balloon after one day? [1]

_____

c) State a reason why helium is a suitable gas to be used in party balloons. [1]

_____