The City School

Science

Class 7

Reinforcement Worksheet

Topics: The Particle Model of Matter
Atoms, Molecules and Ions
Simple Chemical Reactions
Energy Resources

Name:_____Sec:_____Date:_____

Q.1 Choose the best answer.

1. Glucose is made up of carbon, hydrogen and oxygen. The smallest particle of glucose is a/an _____.

a) Glucose molecule
b) Hydrogen atom
c) Oxygen atom
d) Carbon atom

2. After a chemical reaction oxygen atom becomes an oxide ion (O^{2-}). This is because:

a) It gained two electrons
b) It lost two electrons
c) It gained two protons
d) It lost two protons.

3. A methane molecule is made up of one carbon atom and three hydrogen atoms. Which of the following statements is true about methane?

a) It is an element
b) It is a compound
c) It is a mixture made up of two different atoms.
d) It is a molecule of an element

4. When egg shells are mixed with vinegar which gas is produced?

a) Methane
b) Carbon dioxide
c) Oxygen
d) Hydrogen.

5. Which of the following is a chemical reaction brought about by heat?

a) Combustion of methane
b) Decomposition of water
c) Rusting of iron
d) Sublimation of dry ice

6. Which of the following is a chemical change?
   a) Dissolving of sugar
   b) Sublimation of iodine
   c) Electrolysis of water
   d) Boiling of water

7. The following energy resources all derive their energy from the Sun except for:
   a) Biomass
   b) Energy from the wind
   c) Energy from running water
   d) Geothermal energy

8. Coal, crude oil and natural gas are examples of:
   a) Non-renewable energy resources
   b) Fossil fuels
   c) Both a and b
   d) Renewable energy resources.

9. The change from a solid to a gas without melting is known as:
   a) Boiling
   b) Sublimation
   c) Melting
   d) Condensation

10. The smallest particle of an element which cannot be divided further:
   a) Molecule
   b) Atom
   c) Nucleus
   d) Cell

11. Burning of fossil fuel produces:
   a) Oxygen
   b) Helium
   c) Carbon dioxide
   d) Ozone

12. The unit of measurement of energy is _____.
   a) kg
   b) joules
   c) litres
   d) cm

Q.2 Fill in the blanks.

1. A _____ in an atom carries positive charge.
2. Wind turbines use energy from wind to generate _____.
3. Ethanol is a type of alcohol produced from sugar cane through a process called _____.

Q.3 Write True of False.

I.	Atoms of different elements contain same number of protons and electron.	[ ]
II.	An ion is formed when an atom gains or loses an electron.	[ ]
III.	New products are formed as a result of physical reaction.	[ ]
IV.	Burning and rusting are the examples of chemical changes.	[ ]
V.	The energy of running water is called geothermal energy.	[ ]

Q.4 State true or false. Re-write the false statement to make it correct.

1. Particles of solids can flow.

_____

2. The nucleus of an atom is electrically neutral.

_____

3. Rusting of iron is a physical change.

_____

4. Physical changes are generally reversible.

_____

6. Energy in the form of light is needed for the process of Photosynthesis.

_____

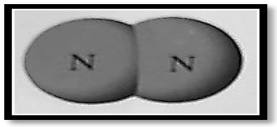
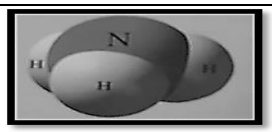
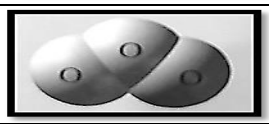
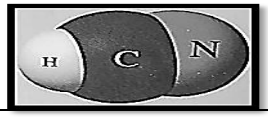
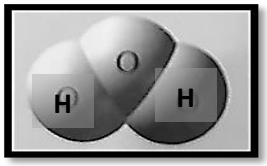
7. The energy resources which cannot be replaced immediately once they are used up are Renewable energy resources.

_____

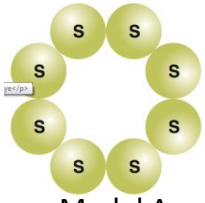
8. Solar furnaces are painted black to trap heat energy from the sun.

_____

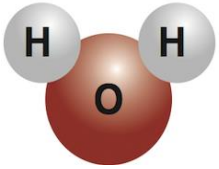
Q.5 Write the chemical formula of the following. [5]

Molecule	Chemical Formula
	
	
	
	
	

Q.6 Complete the missing information in the table about the given models.



Model A



Model B

Model	Types of atom	No of atoms	Chemical formula	Molecule of element or compound?
Model A				
Model B				

Q.7 The atomic number of sodium is 11.

a. Write down its symbol_____
b. How many protons does each sodium atom have? _____
c. How many electrons does each sodium atom have?_____
d. Can you find out the number of neutrons from its atomic number?_____
e. A sodium atom lost an electron in a chemical reaction. Write down the symbol of Sodium ion._____
f. Write down the number of protons and electrons in the sodium ion.
   i) Number of protons : _____
   ii) Number of electrons : _____

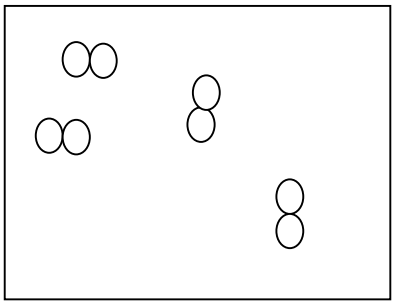
Q.8 Differentiate between the following with examples.

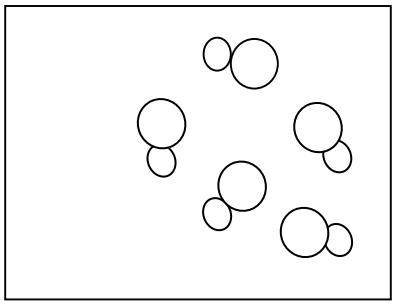
Molecule of element	Molecule of compound
Carbon monoxide	Carbon dioxide
Oxygen molecule	Ozone molecule
Sodium atom	Sodium Ion
Nitrogen atom	Nitrogen molecule

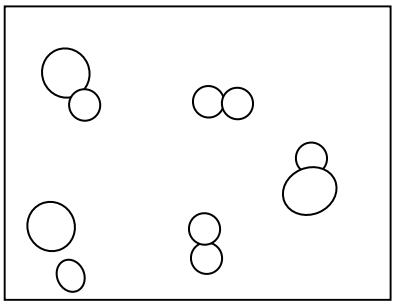
Q.9 Compare the given table.

Process	Freezing	Boiling
Is heat gained or lost?		
How does the arrangement of particles change during this process?		
How does the movement of particles changes during this process?		

Q.10 The circles in the diagram below represents different types of atoms. State whether each of the following diagram represents an element, compound or a mixture.







Q.11 Define the following. State one example of each.

I - Combustion:

_____

_____

_____

II - Decomposition:_____

_____

_____

III - Combination reaction: _____

_____

_____

Q.12 Describe the formation of the following fossils fuels.

I - Natural gas: _____

_____

_____

II - Coal: _____

_____

_____

III - Crude oil: _____

_____

_____

Q4 c) Are fossil fuels renewable or non-renewable energy resources? Explain your answer.

_____

_____

_____

_____

_____