

**SMART SKILLS**

**ACADEMIC SESSION 2017-2018**

**CHEMISTRY**

**CLASS VIII**

**KEY FEATURES OF SCIENCE SMART SKILLS**

- This edition is enriched with activities, quizzes, crosswords, multiple choice questions, in-text questions etc. to check the child's grasp of the concept.
- The **H.O.T.S.** (High Order Thinking Skills) questions will help in developing child's logical and analytical thinking and will greatly enhance the development of independent thinking skills.
- The activities will help to focus child's attention on the concept to follow and explain and reinforce the scientific concepts.
- The **LET US DO** sections have activities like research, group work, peer work etc which will help the child to apply the concepts of science.
- The **FACTOPAEDIA** contains scientific facts. This will help in creating awareness among the students about the world of science.
- Last but not the least – This smart skill has been prepared to help the children develop a scientific aptitude by
  - ✓ Reinforcing concepts
  - ✓ Strengthening expression
  - ✓ Developing independent thinking
  - ✓ Understanding the reasoning of day to day phenomena

**CONTENTS**

<b>Chapters</b>	<b>Pages</b>
<b>1. Syllabus for the year</b>	<b>4-7</b>
<b>2. Chemical effects of electric current</b>	<b>8-18</b>
<b>3. Materials : Metals And Non-metals</b>	<b>19-29</b>
<b>4. Synthetic fibers and plastics</b>	<b>30-39</b>
<b>5. Coal and petroleum</b>	<b>40-45</b>
<b>6. Combustion and flame</b>	<b>46-49</b>
<b>7. Pollution of land and water (PROJECT AS MENTIONED IN SYLLABUS)</b>	
<b>Question Bank and revision</b>	<b>50-55</b>
<b>Term Question paper</b>	<b>56-67</b>



**SYLLABUS****TERM I****APRIL-MAY****Chemical effects of current**

Testing and identification of electrolytes and non- electrolytes by using different devices, the different chemical effects of current, Electroplating- its advantages and applications

**Activities-**

- 1.To test the conductivity of given liquids
- 2.To test the chemical effects of electric current
- 3.To electroplate a nail or blade with copper

Assignments

**JULY**

**Materials: Metals and Non-Metals** - Introduction, physical properties of metals, physical properties of non-metals, Chemical properties of metals and non-metals, Corrosion, Uses of metals and non-metals

**Activities-**

1. To conduct a survey on the uses of different kinds of household materials for the class reports and answer the given questionnaire.
2. To demonstrate the physical properties of metals and non-metals – Sonorousity, malleability, ductility, conductivity, luster
3. To show the conditions necessary for rusting.
4. To show the reactivity of some metals with water, dilute acids.
5. To show that graphite is a good conductor of electricity.
6. To demonstrate displacement reactions using different metals.

**Synthetic Fibres And Plastics** - A project would be undertaken by the students on this topic:- This would be a graded assignment for 5 marks.A comparative chart has to be made by the students by collecting the swatches of clothes and contrasting them on the basis of the following:-

1. To compare the tensile strength of synthetic and natural fibers.
2. To study the thermal conductivity / electrical conductivity of different materials
3. To determine water absorbing capacity of different fibres.
4. To study the effect of flame on different types of fibres.

5. To collect some items from surroundings and classify them as natural or synthetic material.

Plastics -uses of plastics, general properties of plastics, Problems associated with plastic disposal

#### Videos to be shown in the class

1. Different types of fibres
2. Preparation of rayon thread in the lab
3. How are clothes made
4. Fire fighting clothing
5. Different types of plastics.
6. Pollution due to plastics.

#### First term examination

#### TERM II

#### SEPTEMBER- OCTOBER

**Coal and Petroleum** - Introduction, Natural resources- Exhaustible and Inexhaustible, Fossil fuels -coal (formation, products and uses)

#### Activity-

1. To mark the main places on the physical map of India where there are petroleum reserves, coal reserves and natural gas reserves (interdisciplinary) .

#### NOVEMBER -DECEMBER

**Coal and Petroleum (contd.)** - Fossil fuels - petroleum and natural gas; Formation, their products and uses

#### Activity -

1. To show the different energy consumption patterns of past and present generations.
2. Videos
  - a) Formation of coal
  - b) Formation of petroleum
  - c) Petroleum refining.
  - d) Acid rain and global warming

**Project on land and water pollution****Kahoot quiz on the topic OR****PROJECT ACTIVITY****PROJECT TOPICS:**

- Air pollution.
- Taj Mahal-a case study
- Green house effect
- Global warming
- Water pollution

**INSTRUCTIONS**

- Students will work in groups to organize a nukkad-natak to create awareness among people on various aspects of pollution.
- Each group shall be assigned topics from the chapter by their subject teacher.
- Each group shall be given 8-10 min to present the nukkad-natak. The date and time of presentation shall be told to the students well in advance.
- The total marks for the project are 20.

**EVALUATION CRITERIA**

The rubric for evaluation is as under:

- i. Research & Information-5
- ii. Creativity -5
- iii. Effectiveness -5
- iv. Team work and Adhering to the time limit-5

**DECEMBER - JANUARY**

**Combustion and Flame** – Combustion, Conditions necessary for combustion, Types of combustion, Fire, Flame – Structure of a flame, Fuels – Characteristics of an ideal fuel, Calorific value and efficiency of a fuel, Consequences of burning fossil fuels

**Activities-**

1. To prove that combustion of a candle does not take place below its ignition temperature.
2. To show that the non-luminous zone is the hottest zone of the candle flame.
3. To study the presence of wax vapours in the dark zone of the candle flame.
4. To study the presence of unburnt carbon particles in the luminous zone of candle.
5. To demonstrate that carbon dioxide and water is produced on burning candle.
6. To show that a combustible substance must attain its ignition temperature to burn.

**VIDEOS**

1. Combustible and non combustible substances.
2. Different types of fire extinguishers.
3. Zones of candle flame.
4. Air pollution.

**Revision**

**Second term examination**

**Chapter – 14****CHEMICAL EFFECTS OF ELECTRIC CURRENT****ACTIVITY 1 (to be done in the laboratory)**

**Aim:** To test the conductivity of the given liquids

**Materials Required:** Beakers, liquid sample, bulb, key, wires

**Theory:** When the two free ends of the wire of the circuit are dipped in a liquid, the bulb glows if the liquid is an electrolyte.

**Diagram:**

**Procedure:**

1. Fill the beakers with the liquid samples given.
2. Make the connections as shown in the figure.
3. Clean the free ends of wire every time and dip in the liquid samples.

**Observation:**

S.No.	Electrolyte (yes/no)	Bulb glows (yes/no)	Name of the liquid
1			
2			
3			
4			
5			
6			
7			

**Conclusion:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**ACTIVITY 2****Aim – To study the chemical effects of current****Procedure 1**

Take 2 teaspoon of refined wheat flour and mix it with water in a beaker. Connect it to the tester and leave it for 30 minutes.

**Observation**

---

---

---

---

---

**Procedure 2**

Take tap water acidified with a few drops of dil. sulphuric acid in a beaker and connect it to the tester and observe for few minutes.

**Observation**

---

---

---

---

---

**Procedure 3**

Take a metallic blade or key. Connect it to the negative terminal of a circuit whose positive terminal is connected to a copper electrode. Immerse both the electrodes into a solution of copper sulphate. Switch on the circuit and observe after 1-2 minutes.

**Observation**

---

---

---

---

**Procedure 4-** A potato is taken and cut into two halves. The two ends of a copper wire connected to a simple circuit are inserted to the cut ends of the potato. The circuit is switched on and left for 25-30 minutes. What do you observe? Explain your observation.

**Figure**

**Observation:** \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Conclusion**

\_\_\_\_\_  
\_\_\_\_\_

These are some of the chemical effects of electric current.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Define electroplating? Name two electroplated articles in the kitchen.

-----  
-----  
-----

What are the advantages of Chromium plating?

-----  
-----  
-----

## Chapter – 14

## CHEMICAL EFFECTS OF ELECTRIC CURRENT

## ACTIVITY 3

**Aim:** To electroplate a blade/nail with copper

**Materials Required:** Copper plate, blade, cell, copper sulphate solution, beaker, wires, key

**Theory:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Diagram:**

**Procedure:**

1. Make the connections as given in the diagram.
2. The free ends of the two wires from the positive and negative terminals are connected to the copper plate and blade respectively.
3. The key is inserted to allow the current to flow for 1-2 minutes at 4V approximately.

**Observation:**

**Conclusion:**

## Chapter – 14

## CHEMICAL EFFECTS OF ELECTRIC CURRENT

## Assignment 14.1

1. Answer in one word.
  - a. Positively charged ions which get attracted to the negative electrode.
  - b. Apparatus in which electrolysis is carried out.
  - c. Process of depositing a thin layer of metal on another with the help of electricity.
  - d. A solution that conducts electricity.
  - e. Metal rods/plates through which current enters or leaves an electrolyte.
2. Fill in the blanks.
  - a. Water mixed with salts is a \_\_\_\_ conductor of electricity.
  - b. Impurities in water generally \_\_\_\_\_ its conductivity.
  - c.  $\text{Cl}^-$  is a\_\_\_\_\_.
  - d. The flow of conventional current is in the \_\_\_\_\_ direction to the flow of electrons.
  - e. Electrolysis occurs when electrolyte is in the \_\_\_\_\_ state.
  - f. In electrolysis of water, hydrogen is formed at the \_\_\_\_\_ .
  - g. An electric current brings about chemical changes in most conducting \_\_\_\_\_.
  - h. In electrolysis of copper sulphate solution, copper is deposited at \_\_\_\_\_ electrode.

3. Tick the correct option(s):-

- (i) Electricity is a
  - a. bad servant and a bad master
  - b. good servant and a good master
  - c. bad servant but a good master
  - d. good servant but a bad master
  
- (ii) If the gap in an electric circuit is filled with a liquid, the current in the circuit
  - a. flows in some cases and not in others
  - b. never flows.
  - c. always flows
  - d. flows only in case of distilled water
  
- (iii) For electroplating an iron rod with copper, we use
  - a. iron sulphate solution to deposit iron on copper
  - b. copper sulphate solution to deposit iron on copper
  - c. copper sulphate solution to deposit copper on iron
  - d. iron sulphate solution to deposit copper on iron
  
- (iv) A dry cell converts chemical energy into
  - a. mechanical energy
  - b. heat energy
  - c. electrical energy
  - d. none of these
  
- (v) An object with excess of electrons
  - a. negatively charged
  - b. positively charged
  - c. neutral
  - d. charged but sign of charge cannot be predicted
  
- (vi) Which of the following is not a conductor of electricity?
  - a. brine water
  - b. tap water
  - c. distilled water
  - d. sea water

**Chapter – 14****CHEMICAL EFFECTS OF ELECTRIC CURRENT****Assignment 14.2**

1. A simple circuit (tester) is shown. It does not work. What could be the possible reasons?
2. Mention 3 devices which can be used to test the conductivity of liquids.
3. Give 2 examples each of acids, bases and salts?
4. What are the 3 possible chemical changes which may occur when electric current is passed through a conducting solution?
5. What were the observations of William Nicholson when the electrodes were immersed in water?
6. How can the addition of salt in distilled water change its conductivity?
7. How can you identify the terminals of a cell kept in a concealed box when the other two ends of wire connected to the cell are inserted in a potato?
8. What are the practical applications of electroplating?
9. Where is chromium plating done and why? Why are iron objects electroplated with zinc?
10. Can a wooden object be coated with a metal by electroplating? Give reason for your answer.
11. The amount of metal deposited on the negative electrode during electroplating depends on two factors. What are they?

## Chapter – 14

## CHEMICAL EFFECTS OF ELECTRIC CURRENT

## Assignment 14.3

Give reasons for the following:-

1. We should not touch electrical appliances with wet hands.

---

---

2. Common salt does not conduct electricity but salt solution does.

---

---

3. LED has been used rather than normal bulb to test the conductivity of liquids.

---

---

4. Tin cans used for storing food are made by electroplating tin onto iron.

---

---

5. Bridges and automobiles made of iron are given a coating of zinc.

---

---

6. Artificial jewellery is coated with a layer of gold or silver.

---

---

7. Kitchen gas burners are electroplated with chromium.

---

---

H.O.T.S.

It is preferable to use a carbon dioxide extinguisher rather than water to douse electric fire. Why?

## Chapter – 4

**MATERIALS: METALS AND NON-METALS****Smart notes**

**Metals**-Metals are the elements which form positive ions by losing electrons. For e.g Aluminium, Sodium

**Non-metals**- Those elements which form negative ions by gaining electrons. For e.g hydrogen, oxygen

**Metalloids**-Elements which show the properties of both metals and non-metals. fore.g Boron, Silicon, Germanium

**Uses of metals-**

**Copper**-Being ductile and an excellent conductor of electricity, it is used in making electrical wires. As it is a good conductor of heat, it is used to make bottoms of cooking utensils. In making alloys such as brass and bronze

**Aluminium**-As it is malleable, it is used to make foils which are used for packaging food stuffs. Being a good conductor of electricity, it is used for making electrical wires. In making alloys such as Alnico, magnalium and duralium.

**Iron**-Alloys of iron are used for making buildings, ironsheets, bridges, iron bars etc

**Silver** – Amazingly the largest uses of silver is making photographic paper and film.

**Titanium**- it is a strong and light weight metal. It withstands very high temperature. Titanium pins are used in skeletal surgery and in joint replacement surgeries.

**Gold**-it is used in space shuttles. Satellites are coated with an extremely thin. Used for making Jewellery.

**Uses of non-metals-**

**Hydrogen**- is used in the manufacture of Ammonia by Haber process

Hydrogen is used in welding metals. Liquid Hydrogen is used as a rocket fuel.

**Sulphur**-is used in the manufacture of Sulphuric acid. Sulphur is used in making dyes, gun powder and in fireworks. It is also used as a fungicide and germicide for destroying bacteria and fungi.

**Carbon** in the form of graphite is used for making the electrodes of electrolytic cells and dry cells.

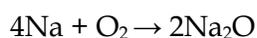
**Nitrogen** is used in making explosives (TNT and nitroglycerine)

**CHEMICAL PROPERTIES OF METALS AND NON-METALS:** Metals and non-metals differ from each other in their chemical properties also.

1. **Reaction of Metals with Oxygen:** When metals react with oxygen, they form metal oxide

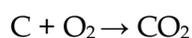


Metal oxides so formed are basic in nature. Some of the metal oxides react with water to form alkalis. Metal oxides, being basic, turn red litmus blue. Similarly, some other metals such as sodium and potassium react with oxygen even at room temperature to form basic oxide and catch fire.

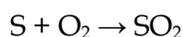


To prevent this reaction, sodium and potassium are stored under kerosene oil.

Non-metals react with oxygen to form acidic oxides. These oxides are acidic in nature and turn blue litmus red. • Carbon reacts with oxygen (of air) and forms carbon dioxide which is acidic in nature.



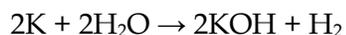
• Sulphur is also a non-metal. When sulphur is burned in air, it reacts with the oxygen (of air) to form an acidic oxide called sulphur dioxide. Sulphur dioxide is a pungent, suffocating gas.



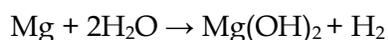
A solution of sulphur dioxide in water turns blue litmus to red, indicating that sulphur dioxide is acidic in nature. When sulphur dioxide is dissolved in water, it forms sulphurous acid.



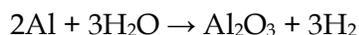
2. **Reaction of Metals with Water:** Metals react with water to form a metal hydroxide or metal oxide and hydrogen gas. Some metals react with cold water, some react with hot water and some react with steam depending upon their chemical reactivity. • Sodium, potassium and calcium react vigorously with cold water and form their respective hydroxides and release hydrogen gas.



• Magnesium reacts with hot water to form magnesium hydroxide and hydrogen.



• Aluminium reacts with steam to form aluminium oxide and hydrogen.

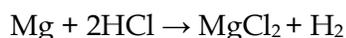
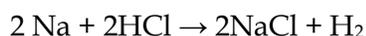


*Lead, copper, gold, platinum do not react with water or steam.*

**Reaction of Non-metals with Water** : Non-metals do not react with water or steam.

### 3. Reaction of Metals with Dilute Acids

Metals react with dilute acids to form a metal salt and hydrogen gas. A salt is formed by displacing hydrogen from dilute acids. Only less reactive metals such as copper, silver, gold do not displace hydrogen from dilute acids, as they are less reactive than hydrogen.



**Non-metals generally do not react with acids.**

### 4. Reaction of Metals with Bases

Some metals such as zinc, aluminum react with sodium hydroxide or potassium hydroxide to form salt and hydrogen gas

**Reaction of Non-metals with Bases** -Reaction of non-metals with bases is very complex.

## 5. DISPLACEMENT REACTIONS – THE REACTIVITY SERIES OF METALS

The tendency of an element to react with other substances to form compounds is known as its **reactivity**. All metals do not have the same reactivity. On the basis of reactions of metals with oxygen, water and acids, metals have been arranged in a series according to their chemical reactivity as shown in. The arrangement of metals in the order of decreasing reactivity is called reactivity series of metals (or activity series of metals). In the reactivity series, the most reactive metal, that is, potassium is placed at the top and the least reactive metal, that is, gold is placed at the bottom.

**A reaction in which a more reactive metal displaces a lesser reactive metal from the aqueous solution of its salt is known as displacement reaction.**

Reactivity Series of Metals			
	<b>Potassium</b>	<b>K</b>	<b>(Most reactive metal)</b>
	Sodium	Na	
	Calcium	Ca	
	Magnesium	Mg	
	Aluminium	Al	
	Zinc	Zn	
	Iron	Fe	
	Tin	Sn	
	Lead	Pb	
	<b>[Hydrogen]</b>	<b>[H]</b>	
	Copper	Cu	
	Mercury	Hg	
	Silver	Ag	
	Gold	Au	<b>(Least reactive metal)</b>

These metals are more reactive than hydrogen

These metals are less reactive than hydrogen

**MATERIALS: METALS AND NON-METALS****Assignment 1**

Q1. Fill in the blanks:-

- a. \_\_\_\_\_ is a reactive non-metal which catches fire in air.
- b. \_\_\_\_\_ and \_\_\_\_\_ are noble metals.
- c. Non metal that has lustre is \_\_\_\_\_ .
- d. Sulphur is a \_\_\_\_\_ colored powder.
- e. \_\_\_\_\_ is a non metal used in water purification.
- f. \_\_\_\_\_ and \_\_\_\_\_ are soft metals which can be cut with a knife or a blade .
- g. Bromine is the only \_\_\_\_\_ which is a \_\_\_\_\_ at room temperature.
- h. Non metals \_\_\_\_\_ when struck with a hard material.
- i. \_\_\_\_\_ and \_\_\_\_\_ occur both in free state and combined state .
- j. The non metal used in jewelry \_\_\_\_\_ .
- k. Melting point of most metals is \_\_\_\_\_ than non metals .
- l. The property which allows metals to be hammered into their sheets is \_\_\_\_\_ .
- m. The property which allows metals to be drawn into wires is \_\_\_\_\_ .

Q2. Write true or false

- a) Sodium metal can be cut with a knife.
- b) Oxygen has antiseptic properties
- c) Sulphur is lustrous non metal.
- d) Oxygen gas is used to preserve food.
- e) Zinc metal can displace copper from copper sulphate solution.

Q3. Choose the correct option for the following-

- i. Iron can displace \_\_\_\_\_ from its salt solution.
  - a. Zinc
  - b. Sodium
  - c. Potassium
  - d. Copper
- ii. Which one of the following is non metal?
  - a. Zn
  - b. Al
  - c. Fe
  - d. N
- iii. Which one of the following is a good conductor of electricity?
  - a. Iron
  - b. Plastic
  - c. Wood
  - d. Glass

Q.4 Find the words listed below from the word search and answer the questions that follow :-

```

h n t l l e l e m m o g s f h
u m t n l s t u u r e r h d t
o e c n t n i i m o e n e n g
i e l t i n s u o p o h n l g
o n a b i s i e p a d g o r h
m s e m a c u o r l h a u t e
a x u t l e c d l o g n h b b
s l o a e e l i e y a a o t e
a p c a a s s l s d n n s n a
a n c o t i i e a t h r t m i
a i i r f t s e e m a b s o s
s c e e d d l s s y a a e e d
h l t c n c r a c t e d y o e
t t p t r e r o m u i n a r u
o y r u c r e m p n y p e o m

```

Words to find: Aluminium, Calcium, Copper, Gold, Malleable, Mercury, Potassium, Uranium.

Use the words you find to complete this passage:

1. \_\_\_\_\_ is the metal used to make drinks cans
2. The metal that is needed for healthy bones and teeth is \_\_\_\_\_
3. The metal that is used in thermometers is \_\_\_\_\_
4. \_\_\_\_\_ is the metal used for electrical wiring
5. The metal used to produce nuclear power and is radioactive is \_\_\_\_\_
6. A shiny unreactive metal used to make jewellery is \_\_\_\_\_

## Assignment 2

- Q1 How will you confirm that the evolved gas formed in the reaction between sodium and water is hydrogen?
- Q2. What precautions should we follow while storing sodium metal?
- Q3. A piece of magnesium is put in a test tube containing hydrochloric acid. Explain the reaction with the help of equation.
- Q4. Give reasons for the following :
- Silver chloride solution changes its colour when zinc pellets are put into it .
  - Iron is not used in jewellery making .
  - Metal oxides are called basic oxides.
- Q5. Identify the possibility for A and B in the following ;
- Copper sulphate (aq) + 'A' → No reaction
  - Copper sulphate (aq) + 'B' → Displacement reaction
- Q6. Which metal turns green over a period of time and why?
- Q7. Why does silver gets tarnished over a period of time?
- Q8. Give reason and justify?
- Bells are not made out of non metals.
  - Tungsten is used as a filament in incandescent bulbs.
  - Stainless steel is preferred over iron for making surgical instruments.
  - Diamond is used in cutting glasses.
  - Wires cannot be drawn from material, such as stone and wood.
- Q9 Give two uses of sulphur in chemical industry.
- Q10 What is a displacement reaction? Explain with an example.
- Q11 Some iron nails were stored in air tight container with silica gel in it and some were left in a test tube outside in the rainy weather.
- What do you think will happen to the two set of nails and why?
  - Which way would you prefer to keep iron nails?
  - Define the process. Give the equation for the above reaction
- Q12 Mr. Sharma was trying to identify an unknown element 'X'. When he placed it in dil HCl, a reaction occurred and brisk effervescence was seen. Answer the questions which follow:-
- Is the element given metal or a non-metal?

- ii. Name one element which will show this reaction.
- iii. Give balanced chemical equation for the above mentioned reaction

## METALS AND NON METALS

### Activity 1

**Aim-** To prove that metal oxides are basic while non metal oxides are acidic in nature.

**Material required-** magnesium ribbon, sulphur powder, blue and red litmus paper, burner, distilled water

**Theory-** oxides of metals form bases when dissolved in water while those of non metals form acids.

#### Procedure-

---

---

---

---

#### Observation-

Colour of blue litmus in the solution of magnesium oxide- \_\_\_\_\_

Colour of red litmus in magnesium oxide solution- \_\_\_\_\_

Colour of blue litmus in sulphur dioxide solution- \_\_\_\_\_

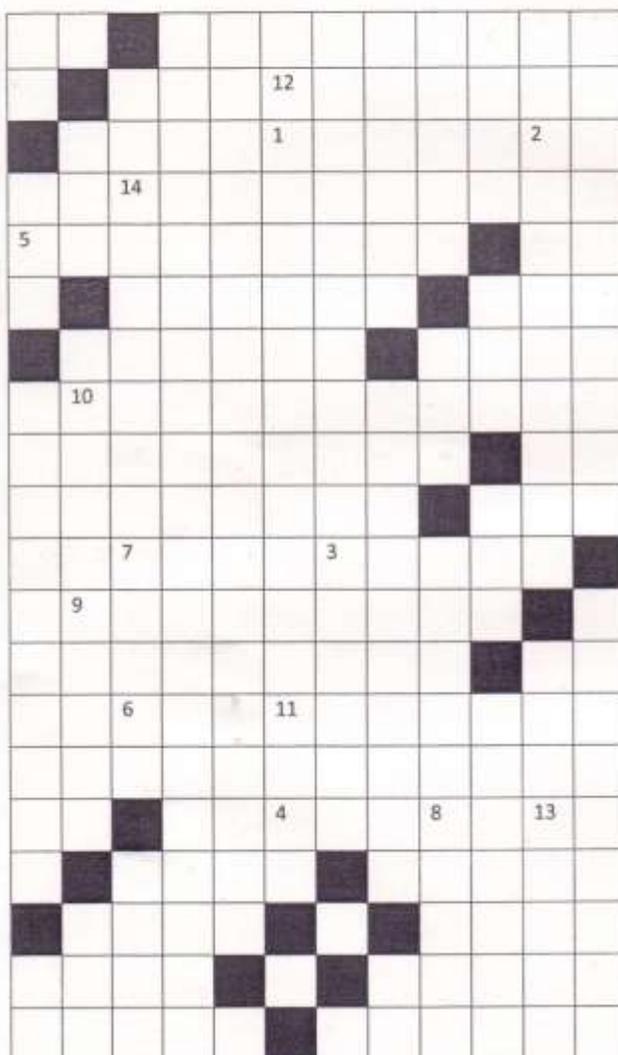
Colour of red litmus in sulphur dioxide solution- \_\_\_\_\_

## Result-

## CLASS 8

## ACTIVITY ( METALS AND NON METALS )

## LET'S ENJOY THE CROSSWORD

Across

- 1 Non metals form these oxides (6)  
 5 Good conductor of electricity.( 7)  
 7 Shiny non metal (6)  
 9 Symbol of a Metal used in foil (2)  
 6 Used in bulb as filament (8)  
 4 Shiny appearance (7)  
 10 Liquid metal (7)

Down

- 12 Metals form these oxides (5)  
 2 Present in bones (7)  
 14 Property to be beaten into sheets (12)  
 11 Noble metal (4)  
 8 Metal used to make cans.(3)  
 3 Symbol of sodium (2)  
 13 Reddish brown deposit on iron metal (4)

**FA ACTIVITY FOR TERM I**

**Aim-** To test the conditions necessary for rusting.

**Material required-** 4 new identical iron nails, 4 empty containers, oil or Vaseline, common salt, cotton.silica.

**Theory-**

**Procedure-**

**Observation-**

**Result**

**Diagram-**

**Chemical equation-**

**Precautions**

This is an individual project which would be evaluated .On separate sheets students have to write the above activity .

Following criteria will be followed for evaluation

- Samples shown
- Activity sheet
- Balanced chemical equation
- Diagram- drawing, labelling and neatness
- Observation/ observation table
- Overall presentation

**Total points- 10**

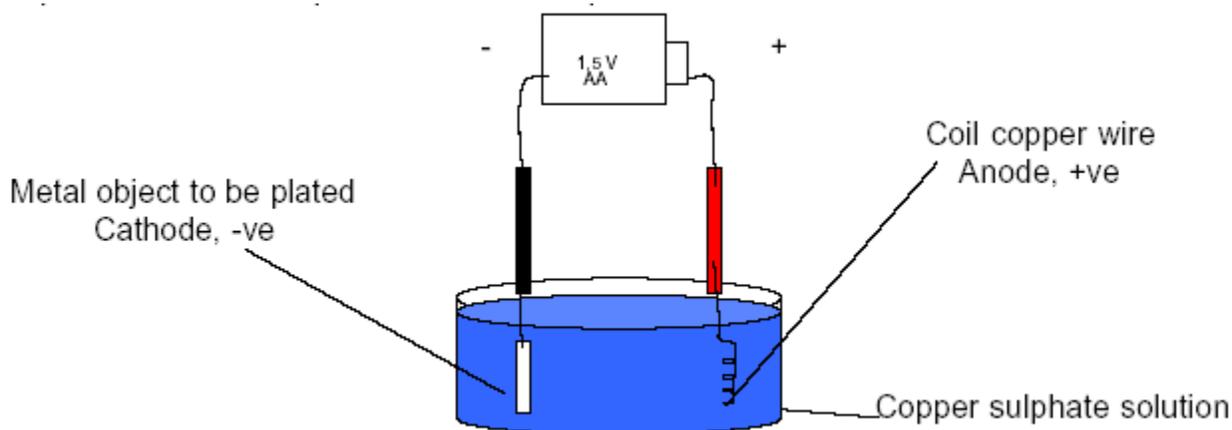
### Fun with chemistry (Copper plating)

You will need

- A plastic or glass container (non metal)
- (1.5 V cell)
- Two length of copper wire
- One coil of copper wire
- A metal object to copper plate (spoon, nail)
- Plastic spoon
- Copper sulphate (the metal salt,) available at most chemist

#### Copper sulphate is poisonous if swallowed

1. Add 1 teaspoon of copper sulphate to water to make up a solution (about to 400ml.)
2. Strip & connect ve lead to object that must be copper plated and place in solution. (For good results make sure object is clean.)
3. Strip coil, connect to positive lead and place coil into the solution



Within a minute the object becomes coated with copper. The electric current splits the COPPER sulphate. The COPPER is deposited on the metal object.

For you to find out:

- Is it possible to electro plate on a non-metallic object? Please explain your answer.

Silver plating, chrome plating, and gold plating are examples of electroplating in industry. The picture shows a watch that was chrome plated. Parts of the plating are eroding. Say what can be done to recoat it. Use the word electroplating in your answer. In the real world getting rid of chemical waste in electro plating is huge problem. What effect does the waste chemical have on the environment?

**Handout****Class VIII****Topic- Synthetic fibres and plastics**

Fibres are classified on the basis of how they are made as-

- a) Natural- Their raw material is obtained from nature. Example- jute, cotton, silk, wool etc.
- b) Synthetic/artificial/ man-made- They are obtained by chemical reactions in the laboratory. Example- nylon, terycot, polyester etc.

**Advantages of synthetic fibres over natural fibres-**

- Easily and abundantly available in a vast variety of colours and designs.
- Durable and strong
- High tensile strength, do not tear easily
- Drip dry, do not absorb much water and therefore, dry quickly
- Do not bleed color in water
- Not attacked by moths or insects, therefore, easily stored
- Wrinkle free, therefore, require little maintenance
- Cheap to suit every pocket

**Disadvantages of synthetic fibres-**

- Do not absorb sweat efficiently and therefore, not suitable for summers
- Melt on heating and stick to the body making them useless for work with heat/fire
- Non-biodegradable- cannot be decomposed by soil bacteria
- On burning, release toxic fumes

**Types of synthetic fibres-**

Some common synthetic fibres are-

- a) **Rayon/artificial silk-**
  - Obtained from cellulose obtained from wood pulp. So, is also called regenerated fibre.
  - Is lustrous like silk but more economical and abundant.
  - Can be woven like silk
  - Was the first synthetic fibre.
  - Can be blended with cotton to make bed sheets.
  - Can be blended with wool to make carpets.
- b) **Nylon-**
  - Was the first fully synthetic fibre
  - Made from coal, water and air
  - Got its name from two cities- New York and London

- Its threads are stronger than steel, elastic, durable and lustrous
- Used for making ropes for tents, parachutes, car seat belts, tooth brush bristles etc.

#### c) Polyester and acrylic-

- Wrinkle free, crisp and easy to wash
- Popular dress material
- Terylene- can be woven like any other yarn and so a popular polyester
- PET- also a common polyester( formed by repeated combination of ester) is made from ethylene glycol and terephthalic acid and is used to make bottles, utensils, films etc
- Acrylic- resembles wool and can be knitted like wool to make woolen garments like sweaters.

#### Preparing a synthetic fibre-

A synthetic fibre is made by the repeated combination of a large number of units called monomers and is called a polymer. The process of formation of a polymer is called polymerization.

#### Plastics-

- Light, strong and durable
- Non- reactive (chemically inert) with oxygen, water or chemicals and therefore find versatile uses
- Poor conductors of heat and electricity
- Easily available and affordable

Are of two types-

- a) **Thermoplastics-** Can melt on heating and can be remoulded. Therefore, are cheaper.

Have a linear chain where the monomers are linked together in a straight line.

Polythene, PVC(poly vinyl chloride) are common thermoplastics used for making toys containers etc

- b) **Thermosetting plastics-**cannot be remoulded on heating and cannot be reused.

Have a cross linked arrangement of monomers.

Bakelite and melamine are popular thermosetting plastics.

Used for making switch boards, handles of pressure cooker, dinner sets etc

#### Plastics and environment-

Plastics are non- biodegradable

Release toxic fumes on heating

If consumed by animals, can be fatal.

How to handle plastic :-

Follow the 4 R's - Reduce, Reuse, Recycle and Recover

Use cloth instead of plastic bags.

## Properties and uses of synthetic fabrics

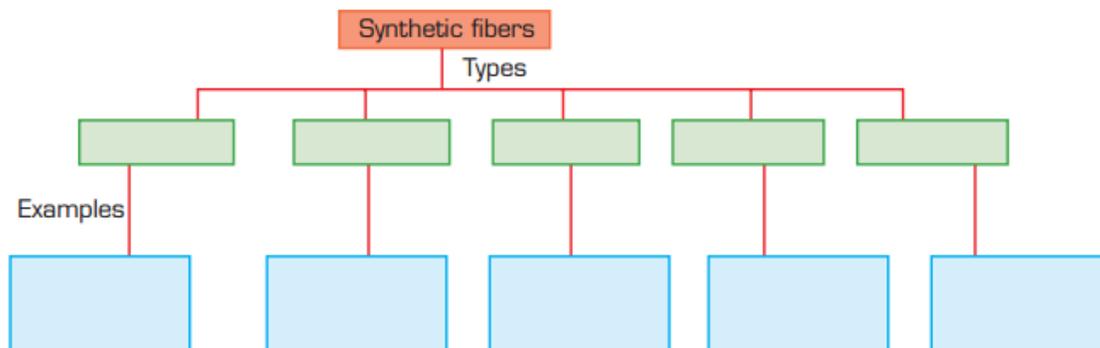
Fabric	Properties	Other Remarks
<b>Rayon</b> (shirts, ties, linings)  shirt necktie	<ul style="list-style-type: none"> <li>Absorbs moisture.</li> <li>It is shiny and lustrous and resembles silk in appearance. It is also called artificial silk.</li> </ul>	It is prepared by modifying cotton chemically. Because of its tendency to absorb moisture, rayon can absorb sweat. Therefore, it is generally preferred over other synthetic fabrics in summer.
<b>Nylon</b> (sarees, socks, stockings, etc.)  socks	<ul style="list-style-type: none"> <li>It is elastic and does not lose strength even after repeated use.</li> </ul>	It is one of the most elastic synthetic fabrics available.
<b>Polyester</b> (sarees, dress materials, shirt, suits, jackets)  saree jacket	<ul style="list-style-type: none"> <li>It is strong, lightweight, and elastic.</li> <li>It resists wrinkling and springs back into shape when creased.</li> <li>Polyester fabrics can be washed and dried easily and quickly.</li> </ul>	Most polyester fabrics have excellent wash-and-wear characteristics and, therefore, require minimum care. Some commonly used polyester fabrics are: (i) Terrycot, a blend of Terylene (a type of polyester) and cotton, is commonly used for making shirts, skirts, and other dress materials. (ii) Terrywool, a blend of Terylene and wool, is used for making suits.
<b>Acrylic</b> (sweaters, socks, shawls)  sweater socks yarn	<ul style="list-style-type: none"> <li>It is warm, soft, light, and flexible.</li> <li>Acrylic yarn can be easily knitted to make sweaters, socks, and shawls.</li> </ul>	Acrylic fabric closely resembles wool in its properties. Acrylic fabrics are also known as <i>Orlon</i> and <i>Acrilan</i> fabrics.

## Different types of plastics

Plastic	Uses
PET (polyethylene terephthalate)	Containers for microwave cooking, carbonated beverage bottles, and other food containers
HDPE (high density polyethylene)	For packaging strong and corrosive household and industrial chemicals like bleaches, acids, and liquid detergents
PVC (polyvinyl chloride)	PVC pipes for sanitary fittings (such as water pipes)
LDPE (low density polyethylene)	Polybags, grocery bags, and packages of frozen foods and bread
PP (polypropylene)	Ketchup bottles, yoghurt containers, medicine bottles, automobile battery casings
PS (polystyrene)	Thermocol, a form of PS, is used for making disposable cups and packaging material for fragile items like computers and televisions

## Assignment 3.1

## E. Complete the concept map.



Q1. Match the following column of A with those of column B

Column A	Column B
(a) Nylon	(i) to make bed sheets
(b) Cotton	(ii) synthetic fibers
(c) Rayon	(iii) to make carpets
(d) Rayon mixed with cotton	(iv) natural fibers
(e) Rayon mixed with wool	(v) obtained by chemical treatment of wood pulp
(f) Cotton is a polymer	(vi) called cellulose

Q2. Fill in the blanks:-

- (a) \_\_\_\_\_ is used in fishing nets.
- (b) \_\_\_\_\_ is a regenerated fibre.
- (c) Nylon word comes from two cities \_\_\_\_\_ and \_\_\_\_\_.
- (e) \_\_\_\_\_ is a polyester fiber commonly blended with cotton to make terycot.
- (f) \_\_\_\_\_ synthetic fiber is also called artificial silk.
- (g) \_\_\_\_\_ is the first completely synthetic material used to make stockings.
- (i) \_\_\_\_\_ is the process of linking up large number of monomers.

Q3. True or false statements:

- (a) Nylon fibers can be worn in summers.
- (b) Like synthetic fibers, plastic is also a polymer.

(c) Synthetic fibers are also called artificial and manmade fibers.

(d) Wood is a non-biodegradable material.

Q4. Explain why plastic containers are favoured for storing food.

Q5. Define petrochemicals.

Q6. Do polymers occur in nature also? Give examples

Q7. Write three advantages of rayon.

Q8. Why do uniforms of firemen have coating of melamine plastic?

### HOTS:

Q.1 Nalini wants to learn swimming. She goes to a store to buy swimming costume and a cap. What kind of material should these be made of and why?

Q.2 We have read in the History that early man used to wear leaves or barks of trees to cover himself. When were clothes made of natural fibres invented? Use the Internet and find out about discovery/ invention of natural and synthetic fibres.

## SYNTHETIC FIBERS AND PLASTIC

A **project** would be undertaken by the students on this topic:-

This would be a graded assignment for 5 marks

A comparative chart has to be made by the students by collecting the swatches of clothes and contrasting them on the basis of the following:-

1. To compare the tensile strength of synthetic and natural fibers.
2. To study the thermal conductivity / electrical conductivity of different materials
3. To determine water absorbing capacity of different fibres.
4. To study the effect of flame on different types of fibres.
5. To collect some items from surroundings and classify them as natural or synthetic material

**Activity 3.1**

Collect at least two samples each of natural and synthetic fibres for the following fibres.  
Complete the table given below.

Remember to heat the fibre only in presence of an adult

Name of the fibre	Sample (stick the sample here)	Effect of heating	Tensile strength	water absorbing capacity	Inference ( natural/ synthetic/mixed)
Cotton					
Rayon					
Wool\ Silk					
Nylon					
Polyester					

Conclusion drawn from the activity-

---

### Activity 3.2

Take out a label from a readymade garment.

Paste the label in the space provided.

Let us get to know our garment by this label-

**Composition of the cloth-**

---

**Caring for the garment-**

---

---

---

**Wash care-**

---

---

## Fun With Chemistry (not to be tested)

# Leaf Batik

Create leaf batik and use it for a decorative and interesting wall hanging in your room. Batik is a centuries-old craft that uses wax and dye to create patterns on fabric. The shapes of leaves inspire batik designs in this project.



©2007 Publications International, Ltd.

**Creating a leaf batik takes a few steps, but the result is well worth the effort.**

This is a great craft for kids and adults to work on together. There are more steps to this craft than with some others; a few of the steps are best left to grown-ups, but kids will have fun working on the craft too.

### What You'll Need:

- Leaves

- Green crayons
- Cans
- Pan
- Water
- Old paint brushes
- Fabric
- Cold water dye (in two colors that can mix)
- Paraffin wax
- Newspaper
- An iron

**Step 1:** Gather several leaves with interesting shapes.

**Step 2:** Use a green crayon to trace the shape of the leaves onto a piece of fabric.

**Step 3:** With help from an adult, put some peeled, broken green crayons in a can. Then put the can in a pan of boiling water to melt the crayons. *Never melt wax or crayons directly on a stove burner. They can catch fire.*

**Step 4:** Using an old paintbrush, spread melted crayon into the leaf shape on your fabric. Coat it completely; then give it time to dry.

**Step 5:** Mix a light-colored cold-water dye with water, according to the instructions on the package.

**Step 6:** Crumple your fabric and dip it in the dye. Allow it to dry.

**Step 7:** Melt paraffin wax in a can in boiling water. Paint branch shapes or any other shapes you like with the paraffin onto the fabric.

**Step 8:** Crumple your fabric and dip it into a darker dye. Allow it to dry.

**Step 9:** Roll your fabric hard in your hands to break up the wax and peel off as much as you can.

**Step 10:** Place the fabric between several sheets of newspaper and ask an adult to help you iron it. The iron will melt the wax, which will be absorbed by the newspaper. Replace the newspaper often, until most of the wax is gone.

**Chapter - 5****COAL AND PETROLEUM****Assignment 5.1**

Q1. Fill in the blanks:

- a. \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_ are grouped under non-renewable sources of energy.
- b. The decayed plants slowly turned into coal through a process of \_\_\_\_\_.
- c. The fossil fuels have a high content of carbon and \_\_\_\_\_ .
- d. The \_\_\_\_\_ of coal produces coke, coal gas, coal tar and ammoniacal liquor

Q2. Correct and rewrite the following statements:

- i) An ideal fuel is expensive and cause pollution.

\_\_\_\_\_

- ii) Natural gas is often found along with coal deposits.

\_\_\_\_\_

- iii) Sun, wind and water are called conventional sources of energy.

\_\_\_\_\_

- iv) Forests and wildlife are inexhaustible natural sources of energy.

\_\_\_\_\_

- v) Write the full forms of the following abbreviations:

a. CNG

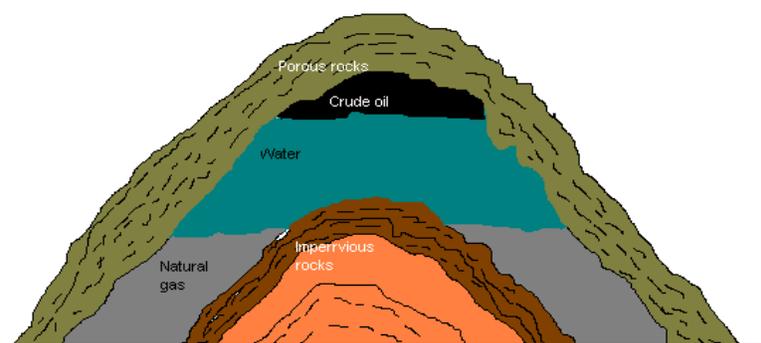
b. LPG

c. PCRA

## COAL AND PETROLEUM

## Assignment 2

Q1. Sridhar made the following diagram of the petroleum and natural gas deposits. Is the diagram correct? If not, correct it.



Q2. What do you understand by the following terms?

- Non-renewable sources of energy
- Petroleum refining
- Fossil fuels

Q3. Differentiate between

- Coal, coal tar and coal gas
- Coal and petroleum
- Bitumen and coal tar
- Exhaustible and inexhaustible natural resources

Q4. Suggest any 3 ways to manage our energy sources wisely.

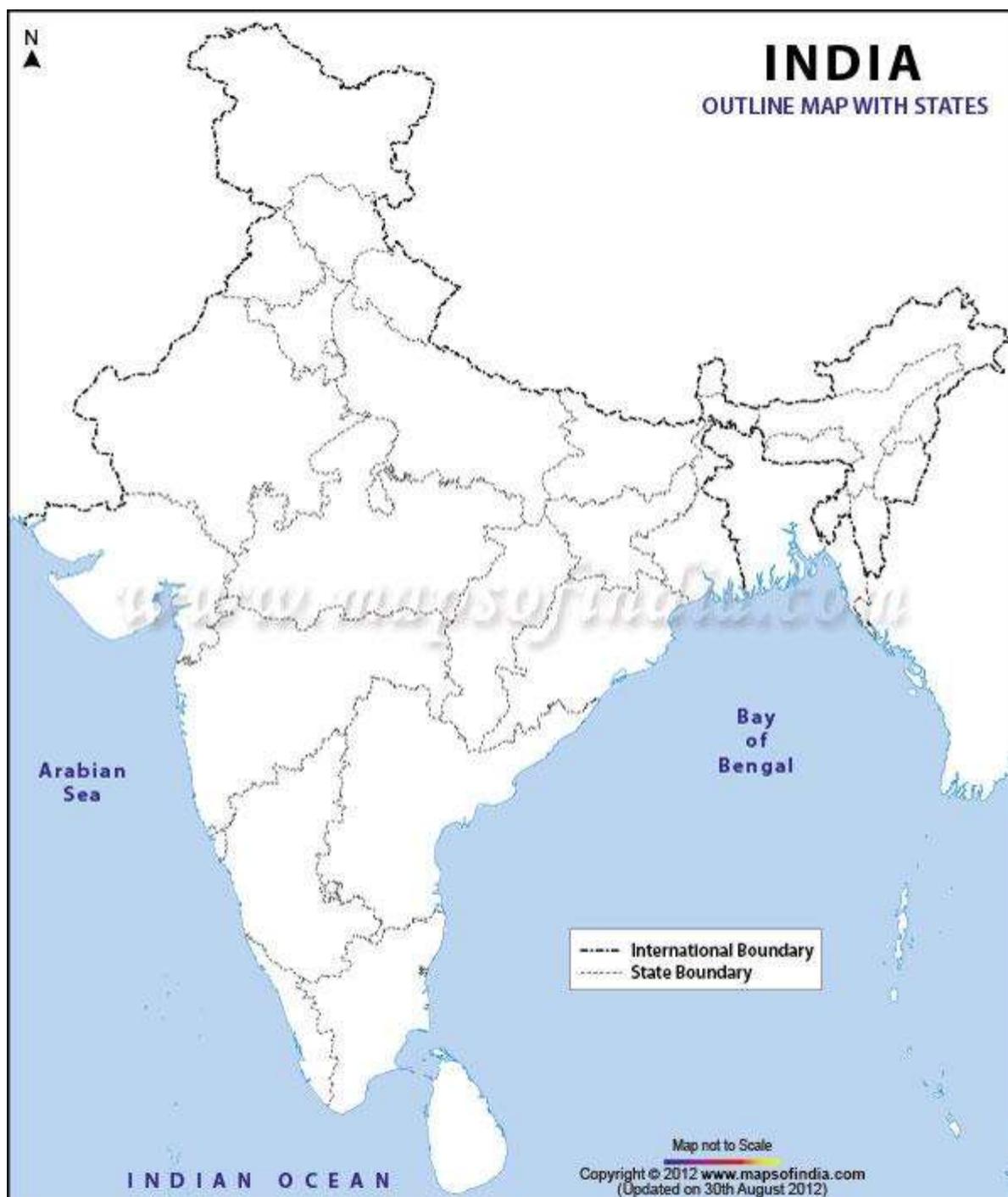
Q5. Suppose you were the minister responsible for the development of energy resources in an island country with no fossil fuel resources. Which energy sources would you try to develop and why?

**H.O.T.S.**

Shania purchased a new car and sent it for fuelling at the petrol pump. It was a diesel vehicle. The driver got it fuelled with petrol. What should he do now?

**ACTIVITY**

On a physical map of India mark two each of coal , petroleum and natural gas reserves



## Chapter - 6

## COMBUSTION AND FLAME

## Assignment

Q1. Classify the following as combustible and non-combustible substances:

Paper, sand, alcohol, metal, marble, plastic, nylon, charcoal, candle and petrol

Q2. What kind of combustion is

- a) Respiration
- b) Burning of white phosphorous
- c) Burning of coal in limited amount of air supply
- d) Burning of LPG

Q3. Categorise the following fuels on the basis of their physical state:

Petrol, wood, LPG, Kerosene, Biogas, Methane, Hydrogen, coal tar and charcoal

Q4. Fill in the blanks:

- a. Calorific value of a fuel is also known as \_\_\_\_\_.
- b. \_\_\_\_\_ is a supporter of combustion.
- c. Kindling temperature is the temperature at which a combustible substance \_\_\_\_\_.
- d. \_\_\_\_\_ gas helps extinguishing fire.
- e. \_\_\_\_\_ is a substance which produces usable heat or energy.

Q5. Give reasons

- a) Red buckets containing sand are kept in offices and cinema halls.
- b) Kerosene oil catches fire faster than wood
- c) Middle zone of candle flame glow with yellow colour.
- d) When the clothes of a person catch fire we cover him with a blanket.
- e) Smelling agent is added to LPG.

Q6. Complete the following table-

Outer Zone	Middle Zone	Inner Zone
Blue		
		No combustion
	moderately hot	
Adequate oxygen supply		
	residue	
		dark Zone

Draw a labeled diagram showing the zones of a candle flame below.

Q7. Calorific value of methane is 50 Kilojoules per gram. What do you understand by this statement?

Q8. Why a candle burns with a flame, whereas a piece of charcoal just glows red when lit?

Q9. Explain your observations giving reasons, what would happen if:

- a) A five-rupee coin wrapped in a cloth is held near a lighted match stick?
- b) Metals like sodium and potassium are exposed to air?
- c) Water is used to extinguish fires caused due to oil spills or electrical short circuits?
- d) A wet cloth is made to catch fire?

Q10 what are the disadvantages of using wood as fuel?

### **H.O.T.S.**

Q1. A car has an engine 800cc. What do you understand by this statement? Find out about the engines of your favourite cars and the type of fuels they run on.

Q2. On a cold winter night, Hari slept in a closed room with a fire place on and all windows closed. What could have happened and why?

Chapter 6

COMBUSTION AND FLAME

**Activity 6.1**

Aim- To show the presence of unburnt carbon particles in the luminous zone of a flame.

Materials required-

Theory-

Procedure.

Diagram.

Observation

Result-

**Activity 6.2**

Aim:-To examine the fuel efficiency of my vehicle

- Name of the vehicle : -----
- Fuel used : -----
- Calorific value of the fuel used : -----
- Mileage : -----
- Observe the latest pollution check certificate of what were the pollutants released in last two months:

What alternative eco friendly fuel you can suggest which can be used to reduce pollution:

Rubric: # Content/facts - 3

# Authenticity of research - 3

#Quality of suggestion - 2

# Timely submission - 2

## QUESTION BANK---CHEMISTRY

Q1. Fill in the blanks :

1. \_\_\_\_\_ is a polyester fibre commonly blended with cotton to make terycot .
2. \_\_\_\_\_ synthetic fibre is also called artificial silk.
3. \_\_\_\_\_ is the first completely synthetic material used to make stockings.
4. \_\_\_\_\_ is polymers that can be moulded into various shapes.
5. \_\_\_\_\_ is a process of linking up large number of small molecules called monomers.

Q3. What is melamine? State two uses of melamine.

Q4. How can we say, plastic is light, strong and durable?

Q5. Can you suggest some ways by which you can contribute towards reducing the use of plastic material?

Q6. Explain why plastic containers are favoured for storing food.

Q7. Define petrochemicals.

Q8. Do polymers occur in nature also? Give examples.

Q9. Write three advantages of rayon.

Q10. Why do uniforms of firemen have coating of melamine plastic?

Q11. Against the name of the following fibres, mention whether they are natural or synthetic :

- a) Wool
- b) Jute
- c) Cotton
- d) Melamine
- e) PET
- f) Polymers

Q12. What happens when metals react with bases?

Q13. What are noble metals?

Q14. Name two metals found in free state.

Q15. Why is chlorine used in water purification plants?

Q16. Name the best and poorest conductor of heat among metals.

Q17. In which term, the purity of gold is measured and expressed?

Q18. What happens when sulphur dioxide is dissolved in water?

Q19. How many metals and non-metals are present among 116 elements?

Q20. List the important uses of metals in daily life.

Q21. Aditya was trying to identify an unknown element 'X'. When he placed it in dil. HCl, a reaction occurred and brisk effervescence was seen. Answer the questions which follow:-

- Is the element given metal or a non-metal?
- Name one element which will show this reaction.

Give balanced chemical equation for the above mentioned reaction with the above mentioned answer.

Q22. Guess who am I?

- 1) I am a reactive non-metal. I catch fire as soon as I am exposed to air or water!
- 2) I am a soft metal and can be cut with a knife or a blade! Oh ya...my name starts with S!
- 3) I conduct electricity though I am a non-metal and touch me.....oh! I am so soft and slippery!
- 4) Oh! What a sparkle I have and I am the hardest substance on earth!
- 5) I am a non-metal and I am used in fertilizers to enhance the growth of plants!

## SECOND TERM

Q1. What is meant by fractional distillation? For which purpose is it used?

Q. 2 Match the items of column A with those in column B.

Column A

Column B

Rock oil

Coke

Black viscous liquid

Petroleum

Porous black residue

Coal tar

Q3. What is destructive distillation of coal? Give uses of all products formed

Q4. In the liquid state hydrogen is used as a fuel in which mode of transport ?

Q5. Why CO<sub>2</sub> is the best fire extinguisher?

Q6. Why does the paper cup containing water not catch fire on heating?

Q7. Why water is not used to control fire involving electrical equipments?

Q8. Explain Why

- (a) It is difficult to burn a heap of green leaves but dry leaves catch fire easily.
- (b) A matchstick needs to be rubbed against the matchbox.
- (c) Red buckets containing sand are kept in offices and cinema-halls.
- (d) Water is not used to put off fire caused by burning of petrol.
- (e) Petrol cannot be used as a fuel in stoves at home.
- (f) A person sleeping in a closed room feels suffocated with burning coal after sometime.

Q9. Differentiate between the following.

- a) Rapid and spontaneous combustion.
- b) Liquid and gaseous fuels.
- c) Coal and coke.
- d) Destructive and fractional distillation

## Revision paper for first term

Write **balanced chemical equations** for the following chemical changes- 2

i. Phosphorus reacts with oxygen to form Phosphorus pent oxide

ii. Sodium metal reacts with oxygen to form Sodium oxide

How do the methods of plastic disposal cause pollution. (Give 2 points). 2

Write a one line slogan to raise awareness against the use of plastic bags.

Choose the correct option for the following- 3

i. Zinc can displace \_\_\_\_\_ from its salt solution.

a. Aluminum

b. Sodium

c. Potassium

d. Copper

ii. Which one of the following is non metal?

a. Zn

b. Al

c. Fe

d. S

iii. Strands of which fiber are stronger than steel.

a. Rayon

b. Nylon

c. Acrylic

d. Silk

iv. Which gas is released when a metal reacts with an acid?

a. Oxygen

b. Hydrogen

c. Chlorine

d. Carbon dioxide

v. The long chain compound formed when monomers combine together.

a. Polymerization

b. Displacement

c. Malleability

d. Photosynthesis

vi. Which of the following is a natural polymer?

a. Nylon

b. Plastic

c. Cellulose

d. Polyester

Aditya was trying to identify an unknown element's'. When he placed it in dil. HCl, a reaction occurred and brisk effervescence was seen. Answer the questions which follow:- **0.5x6 =3**

- Is the element given metal or a non-metal?
- Name one element which will show this reaction.
- Give balanced chemical equation for the above mentioned reaction with the above mentioned answer.

While working on a project Rama painted some iron nails with fabric paints while left the rest of the iron nails outside her house in the rainy weather. **3**

- i. **What** do you think will happen to the two set of nails and **why**?(mention specific conditions)
- ii. Define the process. Give the equation for the above reaction.
- iii. Should you leave your things behind after working with them? What should you do with your things after you have finished working with them? Why?

Give **reasons** for the following-

**4**

- i. Galvanisation is done to prevent Iron railings
- ii. Thermoplastics are used to make toys, combs etc
- iii. Cotton clothes are the right choice for summers.(2 points)
- iv. Rayon is called regenerated fibre
- v. Bakelite is used in making electrical switches.
- vi. Parachutes are made up of nylon

Differentiate between:- (2 points and examples in part i and ii)

**1x6=6**

- i. Biodegradable and non biodegradable substances
- ii. Thermoplastics and Thermosetting plastics
- iii. Cotton and Nylon fibres

Academic Session: 2016 - 17  
Annual Examination  
Subject – Science  
Class –VIII  
Set II

Time :3 Hr.

MM – 80

**General Instructions**

- This paper has printed sides.
- Please attempt **each section on different answer sheets.**
- Read the questions carefully. Marks will be deducted for not following instructions given in the questions.
- Write question numbers as given in the paper.

Section –A	Physics	MM-27
Q.1	For electroplating an iron rod with copper, we use a. iron sulphate solution to deposit copper on iron b. copper sulphate solution to deposit copper on iron c. copper sulphate solution to deposit iron on copper d. iron sulphate solution to deposit iron on copper	1
Q.2	Name the instrument used in the laboratory to produce sound of fixed frequency. What is the SI unit of frequency?	1
Q.3	Give one word for the light sensitive screen at the back of eye where the image is formed. . Mention one more function of this part of the eye.	1
Q.4	In what way does loudness of sound depend on its amplitude? If the amplitude is increased by three times, by how much does the loudness increase?	1
Q.5	Draw a circuit diagram showing a dry cell connected to a bulb through a switch. Mark the positive and negative terminals of the cell and the direction of flow of  a) Electron (Using 'e') b) Conventional current	2
Q.6	List two uses of electroplating, giving the reason for electroplating in each case.	2

Q.7	Answer in brief:	2
	a) On throwing a pebble into a pond, ripples are observed with water molecules vibrating at the rate of 18000 times per minute. i. Determine the frequency and time period of the wave? ii. Will this sound be audible to man?	
Q.8	i) Two mirrors are kept perpendicular to each other. A ray strikes one mirror at an angle of $30^\circ$ to the normal. Find the direction of the ray after reflection by the second mirror by drawing a ray diagram. ii) Differentiate between a real and a virtual image(one point of difference)	3
Q.9	Define a non-electrolyte? Mention briefly two possible effects observed, on passing electric current through an electrolyte?	3
Q.10	Explain with the help of an activity that every vibrating object produces sound	3
Q.11	Give reasons a) Common salt does not conduct electricity but salt solution does. b) LED has been used rather than normal bulb to test the conductivity of liquids c) Wooden objects cannot be coated with a metal by electroplating?	3
Q.12	What is cataract? How is it corrected? State the function of ciliary muscles, retina and the pupil.	5
	Section -B	Chemistry
		MM-27
Q.1	Define the following and give examples:- i. Slow combustion ii. Explosion iii. Flammable substances iv. Petrochemicals	1.5x4=6

- Q.2 'Global warming is the rise of the temperature of atmosphere of the earth.'
- How is combustion of fuel contributing to this effect? Give two reasons to support your answer.
  - Give two ways in which you can contribute towards minimising this effect?
- Q.3 Give reasons for the following:- (2 reasons) 1x3=3
- Carbon dioxide is the best fire extinguisher.
  - Middle zone of the flame is zone of partial combustion
  - Hydrogen is not used as a domestic fuel despite its high calorific value
- Q.4 Define combustion and give the three conditions required for combustion to take place. 2
- Q.5 Write an experiment in the activity format to show that a combustible substance does not burn until it reaches its Ignition temperature. 3
- Q.6 Give 4 characteristics of an Ideal fuel? Give two examples of fuels that are ideal according to you? Justify your choice of fuel with at least one reason. 3
- Q.7
- Draw a neat and labeled diagram to show the zones of a candle flame? Please colour the different zones 3+1=4
  - Which zone of flame will a goldsmith use to melt gold and silver?
- Q.8 Give two uses of the following:- 1x4=4
- Coal tar
  - Petrol
  - Paraffin wax
  - Kerosene

**Section C****Biology-set 2**

MM=26

- Q1 Complete the following sentences 1
- The -----gland stimulates testis to produce male hormone.
  - fertilization leads to the formation of test tube

babies.

Q2 Choose the correct option and write the answer in your answer sheet. 2

1. Human male germ cell is
  - a) Zygote
  - b) Testis
  - c) Ovum
  - d) Sperm
2. Larynx is also called
  - a) Black box
  - b) Voice box
  - c) Sound box
  - d) All of the above
3. Every month-----egg(s) can be released from the human ovary.
  - a) 1
  - b) 2
  - c) 3
  - d) 4
4. Adam's apple is prominent in
  - a) Boys of any age
  - b) Girls of any age
  - c) Adolescent girls
  - d) Adolescent boys

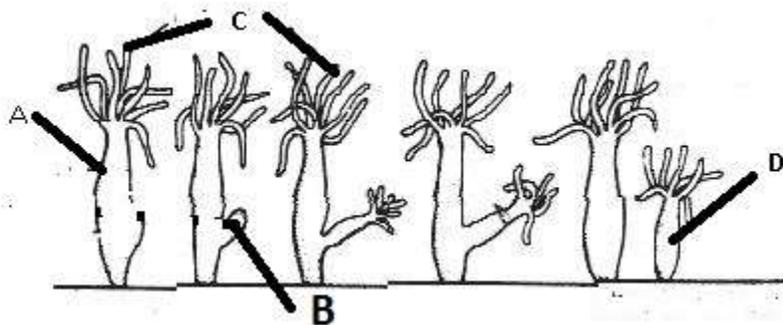
Q3 Identify the hormone that is responsible for the following- 2

- a) The hormone that is secreted by the pituitary gland
- b) The hormone that controls metamorphosis in frogs.
- c) The hormone that controls salt balance in blood
- d) The hormone that is responsible for production of ovum

Q4. Name the following: 2

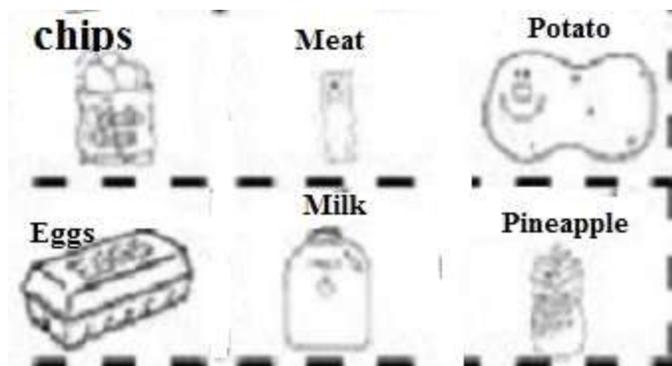
- a) The place where the released hormone brings about action.
- b) The virus responsible for AIDS.
- c) Transformation of larva into an adult through drastic changes.
- d) The glands whose over secretion leads to appearance of pimples and acne.

- Q5. Distinguish between the following( give one point of difference) 2
- Fertilization in frog and fertilization in hen
  - Menopause and menarche
- Q6. 1+2=3
- What are sex chromosomes? How many types of sex chromosomes are present in humans?
  - Why is it that the mother cannot determine the sex of her baby? Explain.
- Q7. 1+1+1=3
- What are secondary sexual characters?
  - What factors are responsible for the appearance of secondary sexual characters in males?
  - Give one example of a secondary sexual character in male
- Q8. Study the following diagram and answer the questions : 2+.5+.5=3



- Name the parts labelled A , B, C and D
  - Identify the process taking place in the above diagram.
  - Define the process
- Q9. Give reasons for the following 4
- We should say “No” to drugs.
  - Legal age for marriage is 18 years for girls.
  - AIDS virus can pass from infected to healthy person.
  - Sometimes humans go through fertilization outside the female body.

Q10.



2+2

- Observe the foodstuff in the picture. Identify the nutrients provided by any two of the foodstuff and mention the advantage of including it in the diet of an adolescent.
- Also mention one foodstuff from the picture, that should be avoided. Give reason for your choice.

Section -A	Set 2 Physics	MM-27
Q.1	For electroplating an iron rod with copper, we use a) iron sulphate solution to deposit copper on iron b) copper sulphate solution to deposit copper on iron c) copper sulphate solution to deposit iron on copper d) iron sulphate solution to deposit iron on copper	1
Q.2	Name the instrument used in the laboratory to produce sound of fixed frequency. What is the SI unit of frequency?	1
Q.3	Give one word for the light sensitive screen at the back of eye where the image is formed. . Mention one more function of this part of the eye.	1
Q.4	In what way does loudness of sound depend on its amplitude? If the amplitude is increased by three times, by how much does the loudness increase?	1
Q.5	Draw a circuit diagram showing a dry cell connected to a bulb through a switch. Mark the positive and negative terminals of the cell and the direction of flow of  c) Electron (Using 'e') d) Conventional current	2
Q.6	List two uses of electroplating, giving the reason for electroplating in each case.	2
Q.7	Answer in brief:  a) On throwing a pebble into a pond, ripples are observed with water molecules vibrating at the rate of 18000 times per minute. i) Determine the frequency and time period of the wave? ii) Will this sound be audible to man?	2
Q.8	i) Two mirrors are kept perpendicular to each other. A ray strikes one mirror at an angle of $30^\circ$ to the normal. Find the direction of the ray after reflection by the second mirror by drawing a ray diagram.  ii) Differentiate between a real and a virtual image(one point of difference)	3



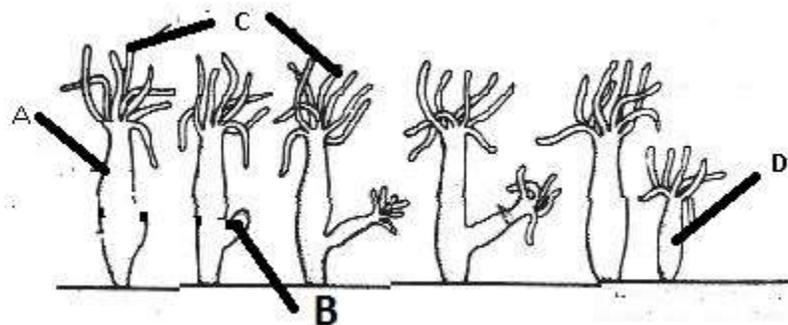
- Q.4 Define combustion and give the three conditions required for combustion to take place. 2
- Q.5 Write an experiment in the activity format to show that a combustible substance does not burn until it reaches its Ignition temperature. 3
- Q.6 Give 4 characteristics of an Ideal fuel? Give two examples of fuels that are ideal according to you? Justify your choice of fuel with at least one reason. 3
- Q.7 a) Draw a neat and labeled diagram to show the zones of a candle flame? Please colour the different zones 3+1=4  
b) Which zone of flame will a goldsmith use to melt gold and silver?
- Q.8 Give two uses of the following:- 1x4=4
- a) Coal tar
  - b) Petrol
  - c) Paraffin wax
  - d) Kerosene

**Section C****Biology-set 2**

MM=26

- Q1 Complete the following sentences 1
- i. The -----gland stimulates testis to produce male hormone.
  - ii. -----fertilization leads to the formation of test tube babies.
- Q2 Choose the correct option and write the answer in your answer sheet. 2
- i) Human male germ cell is
    - a. Zygote
    - b. Testis
    - c. Ovum
    - d. Sperm
  - ii) Larynx is also called
    - a. Black box
    - b. Voice box
    - c. Sound box
    - d. All of the above

- iii) Every month-----egg(s) can be released from the human ovary.
- 1
  - 2
  - 3
  - 4
- iv) Adam's apple is prominent in
- Boys of any age
  - Girls of any age
  - Adolescent girls
  - Adolescent boys
- Q3 Identify the hormone that is responsible for the following- 2
- The hormone that is secreted by the pituitary gland
  - The hormone that controls metamorphosis in frogs.
  - The hormone that controls salt balance in blood
  - The hormone that is responsible for production of ovum
- Q4. Name the following: 2
- The place where the released hormone brings about action.
  - The virus responsible for AIDS.
  - Transformation of larva into an adult through drastic changes.
  - The glands whose over secretion leads to appearance of pimples and acne.
- Q5. Distinguish between the following( give one point of difference) 2
- Fertilization in frog and fertilization in hen
  - Menopause and menarche
- Q6. a. What are sex chromosomes? How many types of sex chromosomes are present in humans? 1+2=3
- b. Why is it that the mother cannot determine the sex of her baby? Explain.
- Q7. a. What are secondary sexual characters? 1+1+1=3
- b. What factors are responsible for the appearance of secondary sexual characters in males?
- c. Give one example of a secondary sexual character in male
- Q8. Study the following diagram and answer the questions : 2+.5+.5=3



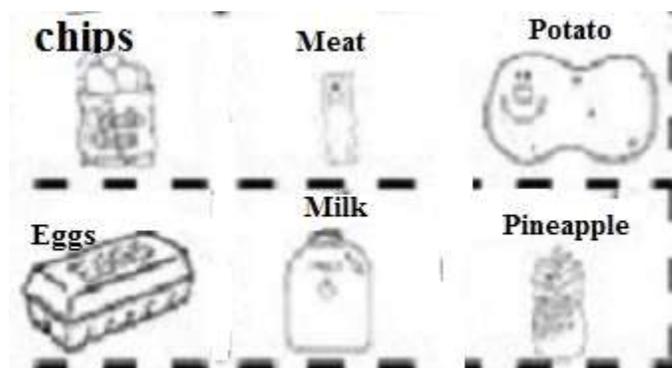
- Name the parts labelled A , B, C and D
- Identify the process taking place in the above diagram.
- Define the process

Q9. Give reasons for the following

4

- We should say “No” to drugs.
- Legal age for marriage is 18 years for girls.
- AIDS virus can pass from infected to healthy person.
- Sometimes humans go through fertilization outside the female body.

Q10.



2+2

- Observe the foodstuff in the picture. Identify the nutrients provided by any two of the foodstuff and mention the advantage of including it in the diet of an adolescent.
- Also mention one foodstuff from the picture, that should be avoided. Give reason for your choice.