

# Common Laboratory Apparatus and Equipments

## Points To Remember

1. Chemistry is an experimental science.
2. A chemical laboratory is a place to perform experiments and to observe chemical processes.
3. Knowledge of chemistry is based on experiment and observation.
4. A chemical laboratory is a place to perform chemical experiments.
5. Various kinds of apparatus and equipments are required to perform experiments.
6. Necessary precautions should be taken while performing experiments.
7. Maintain silence and discipline in the laboratory and concentrate on your experiment.

## Exercise

### Question 1.

Mention one use of each of the following equipments

- (a) Spirit lamp
- (b) Test tube
- (c) Conical flask
- (d) Evaporating dish
- (e) Wire gauze
- (f) Beaker
- (g) Mortar and pestle
- (h) Measuring cylinder
- (i) Glass tube
- (j) Gas jar
- (k) Reagent bottle.

### Answer:

- (a) Spirit lamp is used to heat up substances.
- (b) Test tube is used to conduct tests with small quantities of chemicals for heating and boiling purposes.
- (c) Conical flask to hold sufficient quantities of substance in the form of solution.
- (d) Evaporating dish is used for evaporating liquids.
- (e) Wire gauze is used to keep glass apparatus (flask, beaker) on while heating is in progress. It is also used for uniform distribution of heat.
- (f) Beaker is used for keeping of solutions.
- (g) Mortar and pestle is used to grind and crush solid substances into a powder.
- (h) Measuring cylinder is used to measure the volume of (mainly) liquid substances.
- (i) Glass tube is used to transfer fluids or gases from one vessel to another.
- (j) Gas jar is used for collecting gases and holding them in captivity vacuum.
- (k) Reagent bottle is used for storing chemicals.

### Question 2.

From what materials are the following made up of?

- (a) Test tube rack
- (b) Test tube holder
- (c) Measuring cylinder
- (d) Wire gauze
- (e) Mortar and pestle

**Answer:**

- (a) Test tube rack is made up of wood or plastic.
- (b) Test tube holder is made up of a iron clamp at front and wood or plastic handle at other end.
- (c) Measuring cylinder is made of glass.
- (d) Wire gauze is made of meshed iron wire and a thin asbestos sheet that is fixed at its centre.
- (e) Mortar and pestle is made of porcelain.

**Question 3.**

**List any five precautions taken care of while performing an experiment in a chemistry laboratory.**

**Answer:**

Five precautions to be taken in laboratory are :

1. Do not touch or taste any unknown substance.
2. Use only small quantity of chemical to carry out experiment.
3. Do not work alone in the laboratory.
4. Do not throw hot concentrated acids into the sink directly.
5. Always wear an apron in the laboratory to protect your clothes.
6. While heating keep the mouth of test tube away from your eyes and face.
7. The apparatus to be used in an experiment should be arranged neatly before beginning an experiment.
8. Do not throw broken glass apparatus or used filter paper in the sink. Throw them in a dustbin.

**Question 4.**

**Answer the following questions in brief:**

- (a) Why is chemistry known as an experimental science?
- (b) Why are most apparatus made of glass?

**Answer:**

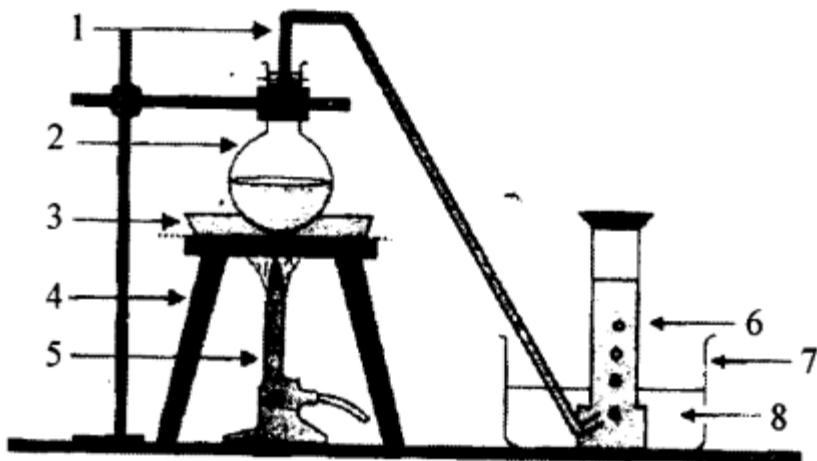
- (a) Chemistry is known as experimental science as an experiment is performed under controlled conditions in an activity and we observe a natural or an artificially created phenomenon.
- (b) Most of the laboratory apparatus is made of glass because:

1. glass is easy to clean.

2. Glass is transparent material and we can see through it clearly.
3. It does not react with most of the chemicals used in experiments.
4. Glass withstands high temperatures.
5. Pyrex glass or borosil glass is a special type of glass which hardly expands on heating. Such glasses do not break even at high temperatures.

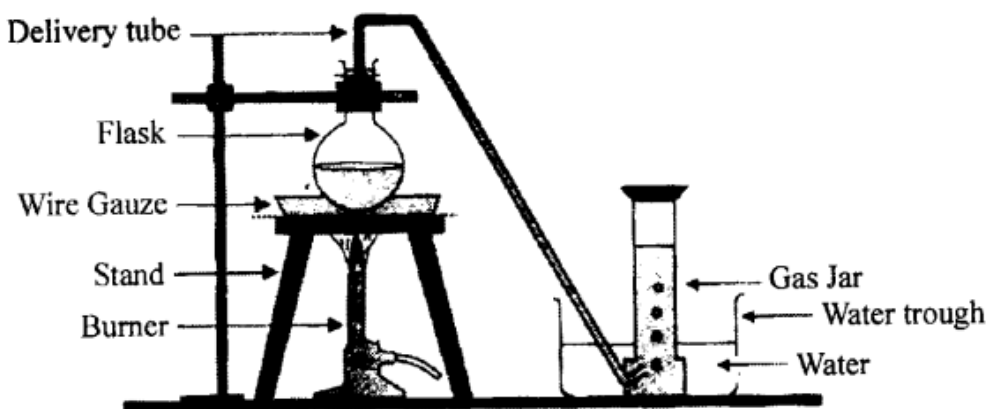
**Question 5.**

Label the marked equipments in the diagram given below.



**Answer:**

1. Glass tube (delivery tube)
2. Flask (round bottomed)
3. Wire gauze
4. Burner
5. Tripod (stand)
6. Gas jar
7. Water trough
8. Water



## Objective Type Questions

### Question 1.

Fill in the blanks:

- (a) Experiment and **observation** are the two important basics of chemistry.
- (b) A porcelain dish is used **for evaporation**.
- (c) A **test tube holder** is used to hold the test tube while-it is heated.
- (d) **Mortar and pestle** is used for grinding and crushing solid substances into a powder.
- (e) Glass apparatus is made of **Pyrex** or **borosil** glass.

### Question 2.

Match the words in Column A with their respective functions in Column B.

	Column A	Column B
	(a) Iron stand	(i) To boil chemicals
	(b) Test tube	(ii) To keep solution
	(c) Funnel	(iii) To stir the solution
	(d) Beaker	(iv) To support apparatus
	(e) Glass rod	(v) To transfer the liquids
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### Question 3.

Choose the correct alternative from the options given for each of the following statements.

(a) The evaporating dish is made of

1. porcelain
2. glass
3. metal
4. plastic

(b) The spirit lamp is made of

1. glass
2. brass

3. steel
4. **all of the above**

**(c) The apparatus to measure an accurate volume of liquid, is**

1. beaker
2. conical flask
3. **measuring cylinder**
4. test tube

**(d) To pass a gas from one vessel to another, you will use**

1. gas jar
2. **delivery tube**
3. glass rod
4. test tube

**(e) To prevent the escape of a gas from a gas jar, you will cover its mouth with**

1. **watch glass**
2. crucible
3. beaker
4. round bottom flask

#### **Question 4.**

**Write true or false against the following statements and correct the false ones.**

- (a) A glass funnel is used to pour off liquids.**
- (b) A test tube is used to test liquid chemicals.**
- (c) A mortar and pestle is used for evaporation.**
- (d) A glass rod is used to stir solutions.**
- (e) A round-bottom flask is used to store chemicals.**

#### **Answer:**

**(a)** True

**(b)** False

**Correct:** A test tube is used to test chemicals and for heating and boiling purposes.

**(c)** False

**Correct:** Mortar and pestle is used to grind and crush solid substances into powder.

**(d)** True

**(e)** False

**Correct:** A REAGENT bottle is used to store chemicals.