Introduction of Chemistry

1. **What are the main branches of Science?**
   Ans. Science is bifurcated into three main branches
   a. **Physics:** Deals with different forms of energy, like light, sound, heat, electricity etc.
   b. **Chemistry:** Deals with the study of substances, like composition, preparation, reactions etc.
   c. **Biology:** Deals with study of living organisms, like plants (Botany), animal (Zoology).

2. **What are the main branches of Chemistry?**
   Ans. The main branches of Chemistry are:
   a. **Inorganic Chemistry:** Includes study of innumerable elements and compounds, including metals and non-metals.
   b. **Organic Chemistry:** Includes study of specific carbon compounds built up mainly of- Carbon, hydrogen.

3. **What is Test Tube?**
   Ans. Test-tube is a special glass tube woth one open and one closed end. Its size is between 4 cms to 15 cms.

4. **What are the functions of Test-tube?**
   Ans. The functions of test-tube are:
   - For heating chemicals and studying reactions in solutions.
   - A boiling tube is resistant to chemicals and used for special purposes.

5. **What is Boiling Tube?**
   Ans. A hard glass test-tube made of pyrex is called Boiling Tube.

6. **What is Bracket and what is its function?**
   Ans. Bracket is a glass container with a lip which is available in varied sizes.
   The functions of bracket are
   It is used for holding, poring and mixing solutions.

7. **Define Flasks?**
   Ans. Flask is a glass apparatus of various shapes for various purposes.

8. **How many types of flasks are used in chemistry lab?**
   Ans. There are four types of flasks are used in Chemistry lab-
   a. Round bottom flask
   b. Flat bottom flask
   c. Conical Flask
   d. Retort

9. **What are the functions of Round bottom flasks?**
   Ans. It is used for gas preparation, where heating is required.
   Since the flask is round bottomed, heat is uniformly distributed throughout on heating.

10. **What are the functions of Flat bottom flask?**
    Ans. t is used for gas preparation, where heating is not required and hence uniform heat distribution is not necessary.

11. **What are the functions of Conical Flask?**
    Ans. It is used for storage of various liquids and for mixing of different solutions.

12. **What are the functions of Retort?**
    Ans. It is used for carrying out distillation experiments which include distillation of acids.

13. **How many types of holders are used in Chemistry lab?**
    Ans. There are four types of holders are used in Chemistry Lab. They are
    a) Test Tube Holder
    b) Test tube Stand
    c) Retort Stand
    d) Tripod Stand and Wire Gauze.

14. **What is test tube holders and write their functions?**
    Ans. Test tube Holder is a metallic clamp which is fixed on a wooden handle.
    Its functions are as below
    a. It is used for holding test tubes when the substance in the test tube is heated on a chemical is added.
    b. The wooden handle at the end being a poor conductor of heat, so that we can hold test tube easily.

15. **What is test tube stand and write its function?**
    Ans. It is a wooden or plastic stand with holes and upright pegs.
    Its functions are as below:
    a. The test tubes are kept straight through the holes which are of different sizes to hold each test tubes.
    b. washed test tubes can be inverted on the pegs in the test tube stand.

16. **What is Retort Stand and write its function?**
    Ans. Retort Stand contains an iron rod with rectangular heavy iron base. A clamp is mounted on the rod which can be raised or rotated.
    Its functions are
    a. It holds the apparatus e.g. flasks, which are used during chemical reaction.
    b. The movable clamp can be adjusted upward and downward.

17. **What is Tripod Stand and write its function?**
    Ans. It is made up of an equilateral iron triangle mounted on three legs for support.
    Its functions are
    a. Support the glass apparatus i.e. a flask or retort placed on it.
    b. It also supports the wire gauze which is placed on it.

18. **What is Wire gauze and write its function?**
    Ans. It is a rectangular wire mesh with an asbestos at its Centre and is placed between the tripod stand and the glass apparatus.
    Its functions are:
    a. It prevents the glass apparatus from cracking on heating from below.
    b. It initiates even distribution of heat to the bottom of the apparatus.

19. **What is Spirit Lamp and its function?**
    Ans. It consists of a glass pot filled with spirit and a neck through which passes a cotton soaks up the spirit.
    It is used for heating purpose.

20. **What is Bunsen Burner and what is its function?**
    Ans. Bunsen Burner consists of a burner tube, an air regulator and a base.
    Its functions are
    - A modern means used for heating purposes.
    - Burner tube is a long tube at the end of which the gas burns.
    - Air regulator is a metal cylinder with holes for regulating the flame
    - Base is connected to a gas tap for inlet of the gas.

21. **What is the function of Thistle Funnel and what is its function?**
    Ans. It consists of a long glass tube with a broad inlet at the top.
    Its functions are
    - It allows entry of the reactants into the round bottom flask.
    - It's lower end dips below the solution in the flask. Otherwise the gases formed may escape out through the thistle funnel and not pass through the delivery tube and get collected.

22. **What is the function of Delivery Tube?**
    Ans. It is a thin hollow glass tube of various shapes.
    The functions of Delivery Tube are
    - For transfer of gases from one apparatus to another.
    - For connecting one piece of glass apparatus to another.

23. **What is the function of Beehive Shelf?**
    Ans: Beehive Shelf is a clay vessel which provide two outlets on the side and at the top.
    The function of Beehive Shelf is, collecting gases by the downward displacement of water. It is kept in a trough of water and the gas jar inverted over it in which the gas is collected.

24. Through which methods Gas Jar collects gases?

Ans. Gas jar collects gases through

a) Downward displacement of water
b) Downward displacement of air
c) Upward displacement of air

25. What is the importance of Chemistry in Agricultural Field?

Ans. The importance of Chemistry in Agricultural Field is:

- Through chemistry we can manufacture Fertilizer, Pesticides.
- It initiates production of different products like Food, Construction, Clothing, Household items, Petroleum, Industrial items etc.

26. What are the functions of Funnel?

Ans. Funnel is used

- For pouring reactants into the thistle funnel or from one vessel to another.
- For carrying out filtration, during which a filter paper made into a conical shape is wetted and placed inside it.

27. What is Pipette?

Ans. It is used to measure liquid by sucking the liquid from the top upto the marked level and closing the open end with the thumb. The measured liquid in then poured out by removing the thumb.

28. What is Burette?

Ans. It is used to measure liquids by pouring the liquid from the top of the burette up to the marked level. The measured liquid is then removed dropwise by opening the top below.

29. What are the uses of Measuring Cylinder?

Ans. Measuring Cylinder is used to measure definite volume of a liquid by filling the liquid to the marked level and then pouring it out.

30. What are Fertilizers?

Ans. A substance to improve fertility and supply plant nutrients, which is essential for growing crops.

Ex: Ammonium Nitrate
Urea
Phosphatic Fertilizer

31. What is Pesticide?

Ans. Pesticides are chemicals, which are added to the soil, to kill pests.
They include Herbicides, Insecticides, Termiticides etc.
They protect the plants from weeds, fungi and Insects etc.

32. What are Herbicides?

Ans. These pesticides kill or inhibits growth of unwanted plants.

33. What are Insecticides?

Ans. These pesticides are used to destroy insects, which harm or destroy plants.

34. Who are Alchemists?

Ans. Alchemists were people who were processors to the Modern Chemist.

35. What is Philosopher's Stone?

Ans. Philosopher's Stone in a legendary substance, capable of turning inexpensive metals like lead or mercury into gold and Silver.

36. What are the main postulates of Dalton's atomic theory?

Ans. The main postulates of Dalton's atomic theory are

Matter consists of particles called atoms, which are invisible and cannot be created or destroyed.

37. What are Food preservatives?

Ans. Food preservatives are substances or chemicals added to food or beverages to prevent decomposition by bacteria or microbes, reduce risk of food borne infections, preserve nutritional quality of food.

38. What is Food processing?

Ans. Food processing involves physical or chemical processes, to transform or change the raw ingredients in food into easy usable forms of food available in markets.

39. Write some process of Food Processing?

Ans. Some processes of Food Processing are

a. Mincing
b. Cooking
c. Pickling
d. Preservative addition
e. Canning
f. Packaging

40. What are cosmetics?

Ans. Cosmetics are mixtures of chemical compounds from natural sources of from Synthetic Sources.

41. What are TALC?

Ans. Talcum powder is made from talc a mineral made up of hydrated magnesium silicate.

It absorbs moisture cuts down on friction, keeps skin dry and prevent rashes.

42. What are the uses of Titanium Di Oxide?

Ans. It is a natural pigment powder which provides a base for mineral makeup. It provides mild sun protection and as a pigment give a write colouration to coloured ingredients.

43. What are the uses of Emulsifier?

Ans. They are used in creams and lotions to give an even texture.

44. What ate uses of Preservatives?

Ans. They extend the shelf life of a cosmetic and may prevent growth of microorganisms.

45. What is Clothing?

Ans. It is a material for covering the body by a fabric. They are made by conversion of fibers such as cotton to synthetic fabrics.

46. What are the uses of Synthetic Fibers?

Ans. Synthetic Fibers are used in expensive clothing, carpets etc.
Ex: Terylene, Nylon, Rayon. Etc.

47. What is Terylene?

Ans. It is a synthetic polyester fiber or fabric formed generally by addition of polyester to natural fibers like Cotton.

48. What are the properties of Terylene?

Ans. The properties are
It is a strong fabric which is

- elastic in nature, resistant to friction,
- suffers little loss in nature, resistant to friction,
- suffers little loss in strength
- crease resistant
- easily washable and dries quickly.

49. What are the uses of Rayon?

Ans. It is regenerated cellulose fiber, which is used in carpets when blended with wool, bed sheet, when blended with cotton.

50. What are the uses of Nylon?

Ans. Nylon is an artificial synthetic fiber, which is used in fabrics, ropes, brushes, hooks etc.

51. What is Medicine?

Ans. Medicines are natural or synthetic substances which when taken in a living body affects functioning and treats or prevents a disease.

52. What are the uses of Aspirin?

Ans: It is a medicine which is used to treat pain, fever and inflammation. Aspirin given shortly after a heart attack, may decrease risk of death. As long time use it may reduce, blood clots in people who are at a high risk.

53. What are the uses of Paracetamol?

Ans. It is a medicine to treat mild to moderate pain and fever. It may also be used in low back pain, headaches and for dental use. It may be sold in combination with cold medicatons. It is safe at recommended does, but too high a dose may result in liver problems.

54. What is Soap?

Ans. Soaps are the substances used with water, for cleaning and washing and are made from a compound of vegetable oils or animals fats along with sodium or potassium hydroxide and generally have perfumes or colorants, added to it.

55. What are Detergents?

Ans. Detergents are synthetic water-soluble cleaning agents that unlike soap are prepared from petroleum products along with sodium or potassium hydroxide.

56. What are the advantages of Detergent?

Ans: The advantages of Detergent are

- Hard water is one which does not lather with soap, while soft water lathers easily.
- Ordinary soap when rubbed in hard water is wasted and lather forms only after all the insoluble salts in hard water are removed as scum.
- Synthetic Detergents do not form scum and lather ever in hard water.

57. What are Stain Removals?

Ans. It is the process of removing a mark or a stain left by one substance on a specific surface.

Ex: Lemon Juice: It contains citric acid and is used for removing stains from fabrics.

Hydrogen Peroxide: A mild breaching agent also effective in removing stains.

Glycerine: It is used to softens strains on wool.

Sodium Hydroxide: It is used to dissolve grease and oil and preferred as a drain cleaner.

Boiling Water: It is used for softens fruit juice stains on a fabric.