Frequently asked question:

1. Write a short note on bottling and canning process.

Bottling and canning process with preservatives is very important in food manufacturing industries. The process involves cooking fruits or vegetables, sealing them in sterile cans or jars, and boiling the containers to kill any remaining bacteria as a form of pasteurization. High-acid fruits like strawberries require no preservatives to bottle and only a short boiling cycle, whereas marginal fruits like tomatoes require longer boiling and addition of other acidic elements. Food preserved by canning or bottling is at immediate risk of spoilage once the can or bottle has been opened.

2. How to resolve the problems in food products packing?

- The use of renewable forms of energy that do not reduce the planet‘s limited energy reserves.
- The use of resources and raw materials that are renewable or subjected to safe recovery processes.
- No emission or disposal of any substance that modifies or deteriorates the natural environment and the life forms that develops in it.
- Do not produce any product whose consumption may cause a decrease in natural reserves, or cause the deterioration or modification of the natural environment.

3. What are the Dos and Don'ts for Canning/Bottling High Quality Special Products?

- Market tests your processed products on a small scale by providing samples to your fresh produce customers.
- Start with only the best quality, freshest ingredients.
- Use only high quality containers and food grade caps liners for a proper seal.
- Sort and wash thoroughly before chopping/slicing/pre-treating.
- Follow recommended procedures for pre-treatments such as blanching ie make white or remove color, peeling, seeding or coring to ensure high quality.
- Leave enough heads pace when filling containers.
- Measure acidity to determine the proper processing method to use.
- Make sure canned/bottled products are processed at the proper temperature and pressure for the recommended length of time.
- Adjust processing times for food products uses in different altitude. Add 5 minutes to boiling water bath times for altitudes from 3001 to 6000 ft; 10 minutes

for altitudes from 6001 to 8000 ft. For altitudes over 100 ft, increase the pressure for processing via pressure canners.

- Follow the safety practices to prevent food safety problems during processing.
- Work with a reputable co-packer to process produce if you are unwilling to make the investments necessary to ensure high quality and food safety.
- Store products in a cool, dark place, Check containers to make sure a vacuum seal is present. Signs that products have spoiled include broken seals, seepage, mold, yeast growth, gassiness, fermentation, spurting liquid when jar is opened, sliminess, cloudiness, and disagreeable odors.

4. What are the types of safe canning methods?

Safe Canning Methods are Water bathing method and pressure bottling method

5. Write a note on water bathing method

Bottles filled in water bath, generally covering the bottle by 2 to 3 cm and heating the contents with hot water for a prescribed time. The boiling water bath method is safe for tomatoes, fruits, jams, jellies, pickles and other preserves. In this method, jars of food are heated completely covered with boiling water and cooked for a specified amount of time. The water bathing method is not suitable for herbs, garlic, low acidity tomatoes or any vegetables. This also means that you should not add herbs, onions or garlic to tomatoes to process via the water bathing method. Water-bath preserver can find in both electric and stove top varieties. Stove top units include the Ball Preserving Kit and all pressure canners can also be used as stove top units by removing the pressure regulator on the top of the unit. Currently pressure canners are only available in stove top versions. They are not suited to use on glass top stoves or induction cookers. They can be used on outdoor gas burners in those cases.

6. Write a note on pressure bathing method

Pressure Bottling or Pressure canning is the only safe method of preserving vegetables, meats, poultry and seafood. Jars of food are placed in 2 to 3 inches of water in a special pressure cooker which is heated to a temperature of at least 240° F. This temperature can only be reached using the pressure method. A microorganism called Clostridium botulinum is the main reason why pressure processing is necessary. Though the bacterial cells are killed at boiling temperatures, they can form spores that can withstand these temperatures. The spores grow well in low acid foods, in the absence of air, such as in canned low

acidic foods like meats and vegetables. When the spores begin to grow, they produce the deadly botulinum toxins (poisons).
The only way to destroy these spores is by pressure cooking the food at a temperature of 240°F, or above, for a specified amount of time depending on the type of food and altitude. Foods that are low acid have a pH of more than 4.6 and because of the danger of *botulism*; they must be prepared in a pressure canner.

7. Write a note on low acid and high acid food.

The low acidic foods include:

- Meats
- Seafood
- Poultry
- dairy products
- all vegetables

High acid foods have a pH of 4.6 or less and contain enough acid so that the Clostridium botulinum spores cannot grow and produce their deadly toxin. High acidic foods can be safely canned using the boiling water bath method.

The high acidic foods include:

- fruits
- Pickled vegetables

Certain foods like, tomatoes and figs, that have a pH value close to 4.6 need to have acid added to them in order to use the water bath method. This is accomplished by adding lemon juice of citric acid.

8. Write on jars and jar lids.

Jars

Mason jars and Ball jars specifically designed for home canning are best. Commercial mayonnaise jars, baby food and pickle jars should not be used. The mouths of the jars may not be appropriate for the sealing lids and the jars are not made with heavy glass and they are not heat treated.

Jars come in a variety of sizes from half-pint jars to half-gallon jars. Pint and quart Ball jars are the most commonly used sizes and are available in regular and wide-mouth tops. If properly used, jars may be reused indefinitely as long as they are kept in good condition. Atlas jars should not be used for home preserving and canning.

Jar Lids

Most canning jars sold today use a two piece self-sealing lid which consists of a flat metal disc with a rubber-type sealing compound around one side near the

outer edge, and a separate screw-type metal band. The flat lid may only be used once but the screw band can be used over as long as it is cleaned well and does not begin to rust.

9. Write a note on Canning Utensils

Helpful items for home canning and preserving:

- **Jar lifter:** essential for easy removal of hot jars.
- **Jar funnel:** helps in pouring and packing of liquid and small food items into canning jars.

Lid wand: magnetized wand for removing treated jar lids from hot water.

- **Clean cloths:** handy to have for wiping jar rims, spills and general cleanup.
- **Knives:** for preparing food.
- **Narrow, flat rubber spatula:** for removing trapped air bubbles before sealing jars.

Timer or clock: for accurate food processing time.

- **Hot pads**
- **Cutting board**

There are also many special utensils available like apple slicers, cutting spoons for coring and pit removal, corn cutters and fruit skinners.

10. How to prepare the covering liquids for canning?

Most canned products are filled with hot sweet syrup solutions, brines (salt with a small amount of sugar) or sauces that must be at the highest possible temperature at the time that the container is being filled. This helps to optimize the sterilization process because the container starts at an initially high temperature, and at the same time it helps to eliminate air from the headroom in the container.

In the case of vegetables, a 2% brine solution with a small quantity of sugar to enhance the flavour is used. Most fruit is preserved in syrup. This sweetens the fruit and at the same time helps to keep the texture firms and prevents the loss of color that could occur due to the degradation of anthocyanic pigments. This process only generates waste water from cleaning.

11. How to Seal the containers?

Sealing the containers is an essential part of the canning process because incorrect sealing would lead to recontamination of the foodstuff once it has been sterilised. There are various sealing alternatives according to the type of container. Glass jars are normally vacuum sealed while tins are closed with a double seam on the seal side and they can also be vacuum sealed. Sealing can be done with either

manual equipment or very modern, efficient machinery than can seal over a thousand cans a minute.

12. How to sterilize during canning?

Heat treatment is the most important operation in the process of manufacturing canned products. It is an operation in which the foodstuff is heated to a sufficiently high temperature and during a sufficiently long period of time to destroy all microbial and enzymatic activity in the food and it also lengthens the life of the product.

13. write a note on Water Bath Canners

Water Bath Canners A water bath canner is a large cooking pot, with a tight fitting lid and a wire or wooden rack that keeps jars from touching each other. The rack allows the boiling water to flow around and underneath jars for a more even processing of the contents.

14. write a note on Canning for Preserving Food

Canning is an important, safe method for preserving food must stabilize properly. The canning process involves placing foods in jars or similar containers and heating them to a temperature that destroys micro-organisms that cause food to spoil. During this heating process air is driven out of the jar and as it cools a vacuum seal is formed. This vacuum seal prevents air from getting back into the product bringing with it contaminating micro-organisms.

15. write a note on Pressure Canners

A pressure canner is a specially-made heavy pot with a lid that can be closed steam-tight. The lid is fitted with a vent or pet-cock, a weighted pressure gauge and a safety fuse.