## IV. Frequently asked questions:

**1. Write briefly about the history of bread and when was the first bread process developed?**

Bread has played a key role in the development of mankind and is one of the principal sources of nutrition. Bread is one of the oldest prepared foods. Almost 30,000 years ago in Europe the presence of starch residue on rocks were found. Probably starch extract from the roots of plants was spread on a flat rock, and cooked into a primitive form of flatbread. Around 10,000 BC, with the dawn of agriculture, grains became the mainstay for making bread.

Chorleywood process was developed in 1961, which used the intense mechanical working of dough to reduce the fermentation period and the time taken to produce a loaf. This process, requires high-energy mixing and use of low protein grain, and is now widely used around the world in large factories.

**2. What are the important characteristic of wheat for the production of quality bread?**

Flour should have a creamy white appearance, without bran fragments otherwise the bread will have a dull white crumb. The flour is referred as strong or weak. For the production of quality bread, strong flours needs a longer fermentation. Bread flour should have sufficient strength so that the dough made from it retains its shape during baking.

The ability of flour to withstand the fermentation process and to produce a satisfactory loaf over a period of time is defined as tolerance. The flour should be with good tolerance. The flour should hold the maximum amount of moisture without additional mixing for full development of dough.

**3. What are the ingredients involved in bread making?**

Bread making ingredients are divided as essential and optional ingredients.

Ingredients which are must for making bread comes under essential. They are flour, water, yeast and salt. If any one of these ingredients is missing, the product is not bread.

Sugar, fat, milk and milk products, oxidants, various enzyme preparations including malted grains, surfactants and additives to protect against molds are considered as optional ingredients for bread making.

**4. What are the major function of yeast in bread making?**

Yeast is one of the fundamental ingredients. Its major function in bread making is to lighten

the dough and to impart characteristic aroma and flavor. Yeast (*Saccharomyces cerevisiae*) is a source of several enzymes like zymase, lipase, protease, invertase, maltase, etc. Yeast utilize fermentable sugars in the fermentation process to produce carbon dioxide gas through the action of enzyme. For efficient action of yeast, sugars, nitrogen, minerals and vitamins are essential.

**5. What are the parameters to determine selection of water for the bread making?**

Without water, dough cannot be prepared. Water has several functions in bread making. It is essential for the formulation of gluten. Only when flour proteins are hydrated, gluten is formed.

The water used should be fit to drink and free from contamination and disease forming bacteria. Hard water which has high content of minerals should not be used as they have tightening effect on the gluten and retards fermentation. On the other hand, if soft water is used then the gas production and gas retention of the dough is poor. Thus, medium hard water yields excellent result in the bread production.

**6. Write a brief note on the importance of salt in bread making?**

Salt is added to impart taste to the bread. Salt is used at 1-2 percent level based on flour weight. It enhances the taste of other ingredients and improves the flavor and characteristics of the bread. It has controlling effect on the activity of yeast and the rate of gas production. Salt aids in preventing the formation and growth of undesirable bacteria in yeast-raised doughs. Salt makes the dough stronger and has tightening effect on the gluten proteins, which improves the gas retention of the dough. The strengthening effect of salt, improves the grain and texture of bread crumb. Salt is hygroscopic and keeps the bread moist and fresh for longer time.

**7. What are the optional ingredients in bread making?**

Sugar, fat, glycerol – monostearate (GMS) and milk are the optional ingredients in bread making.

**8. What is Glyceral – monostearate (GMS) and its role in bread making?**

It is an emulsifying agent and acts as surfactant. Emulsifiers like GMS are used to reduce the fats. GMS is used along with the fat. GMS is an excellent flour strengthener, which enhance gluten, increases absorption and dispersion of water, thus ensuring more loaves per batch. It improves texture of bread by ensuring a fine and more uniform crumb structure. It keeps the bread fresh and soft.

**9. What are the advantages of adding milk solids in the bread dough?**

a) Increased absorption and dough strengthening, b) Increased mixing tolerance

c) Longer fermentation time (the buffering action of milk, the non-fat dry milk solids decreases the enzymatic activity especially the diastatic activity during the entire fermentation time, thus satisfactory loaf of a bread, d) Better Crust Colour, e) Better grain and texture, f) Increased Loaf Volume, g) Better Keeping Quality and h) Better Nutrition

**10.Why calcium propionate and acetic acid are used to bread making?**

Improvers like potassium bromate, potassium iodate, ascorbic acid and calcium peroxide are added at levels of parts per million. They add active oxygen to the dough, enhances the strength of gluten with better bread quality.

Preservatives like calcium propionate and acetic acid are used to inhibit the growth of fungi or mold. They improve the keeping quality of bread.

**11.What is the different between straight dough and sponge and dough process?**

The straight-dough process is the simple. In this method, all the ingredients are mixed into a developed dough and allowed to ferment. During fermentation, the dough is usually punched one or more times. After fermentation, it is divided into loaf-sized pieces, round molded into the loaf shape and placed into the baking pan.

In sponge-and –dough process, part of the flour (two third), part of the water and the yeast are mixed just enough to form a loose dough (sponge). The sponge is allowed to ferment for 5 hr, then it is combined with the rest of the formula ingredients and mixed into a developed dough. After being mixed, dough is given an intermediate proof (floor time) of 20-30 minutes. It is divided, molded and proofed as in the straight-dough procedure.

**12.What are the steps in bread making?**

The steps in bread making are i) Sieving, ii) Weighing, iii) Mixing, iv) Preparation of different solutions, v) Fermentation, vi) Knock-back, vii) Scaling or Dividing, viii) Rounding, ix) Intermediate Proof, x) Moulding, xi) Final Proof, xii) Baking

**13.What is the importance of knock-back in bread making?**

As fermentation proceeds, punching or remixing of the dough is done. Punching in between the fermentation increases gas retention capacity of the dough. Knock back equalize dough temperature throughout the dough. The knock-back also aids in the mechanical

development of gluten by stretching and folding action. Knock-back is done when 2/3 of the normal fermentation time is over.

**14.How to find the bread is proofed properly?**

To determine whether the loaf is properly proofed, touch the loaf lightly with one finger-tip and press in slightly. If the impression made by the tip of the finger remains, the loaf is proofed; if the imprint does not remain and fills out when the finger-tip is removed, the loaf is still too tight and compact and should be proofed more.

**15.Why cooling is important after the baking?**

After baking, the loaves have to cool down to room temperature so that they do not dry excessively. Conditions which cause the excessive drying are that air is too dry or warm in the cooling room or there is excessive air circulation in the cooling room. Other purpose of cooling before slicing and wrapping are to:

1. Facilitate slicing
2. Prevent condensation of moisture in the wrapper.
3. Desirable temperature of bread during slicing is 35-40°C.

**16.What are the packaging requirements of bread?**

The packaging requirements of bread demand a few characteristics in the packaging materials. The packaging material should be sealable, should have low water vapour transmission rate and should be economical. For bread wrapping, mostly wax paper is used, however, in the developed countries, plastic films like polypropylene are also extensively used.