Frequently Asked Questions (FAQs)

1. Name some of the microorganisms of milk from the udder?

Ans) Although milk produced from the mammary glands of healthy animals is initially sterile, microorganisms are able to enter the udder through the teat duct opening. Grampositive cocci, streptococci, staphylococci and micrococci; lactic acid bacteria (LAB), *Pseudomonas* spp. and yeast are most frequently found in milk drawn aseptically from the udder; corynebacteria are also common. Many bacterial species are able to cause mastitis infection, but the most common are *Staphylococcus aureus*, *Streptococcus agalactiae*, *Streptococcus uberis* and *Escherichia coli*. These bacteria enter the udder by the teat duct, and *Staphalococcus aureus* is able to colonise the duct itself.

2. How is sweetened condensed milk spoiled?

Ans) The sweetened condensed milks ensures that only osmophilic and osmotolerant organisms are able to grow. Canned products may be spoiled by slow growth of osmophilic yeasts, particularly *Torulopsis* spp., which enter the product after heating and may produce sufficient gas to cause blown cans. If sufficient oxygen is present in the headspace, or the can has a small pinhole leak, moulds such as *Aspergillus* and *Penicillium* spp. may grow as 'buttons' on the surface of the product.

3. How are milking equipment sources of contamination of milk?

Ans) Milking equipment and bulk storage tanks have been shown to make a significant contribution to the psychrotrophic microflora of raw milk if not adequately sanitised (1). Exposure to inadequately cleaned equipment and contaminated air are also sources of contamination.

(2). Milk residues on surfaces, and in joints and rubber seals can support the growth of psychrotrophic Gram-negative organisms such as *Pseudomonas, Flavobacterium, Enterobacter, Cronobacter, Klebsiella, Acinetobacter, Aeromonas, Achromobacter* and Alcaligenes, and Gram-positive organisms such as *Corynebacterium, Microbacterium, M*

(3) These organisms are readily removed by effective cleaning and disinfection, but they may build up as biofilms in poorly cleaned equipment. Gram-positive cocci, some lactobacilli, and Bacillus spores can colonise this material and are then protected from cleaning and disinfection. Some of these organisms may survive pasteurisation and eventually cause spoilage.

(4) Other, less significant, sources of contamination include farm water supplies, farm workers and airborne microorganisms.

4. Write a short note on Standard Plate Count (SPC) Method?

Ans)In this method a known quantity of milk sample is diluted to known degree and equal portions of each dilution is poured in to a petriplate followed by addition of nutrient

agar medium, a technique known as pour plate method. The medium is allowed to solidify after mixing the contents by gentle rotation of the plate. The organisms present in the sample are expected to be trapped in the agar gel. The plates are subsequently incubated at 37°C for 48 to 72 hours. In principle each organism is expected to take up a separate position in the medium and grow in to a mass of cells of a size sufficient enough to be counted by naked eyes, recognized as a colony forming unit (cfu). Hence, a colony count performed at this stage represents number of viable bacteria present in the given volume of milk sample.

5. Name some of the variety of Soft cheese?

Ans) Some of the soft cheese variety with High moisture (55 - 80%) are as follows:

a) Fresh, unripened (cottage cheese, Ricotta, Quarg, Fromage

Blanc, Neufchatel, Mozzarella)

b) Surface mould-ripened (Brie, Camembert)

6. Define Milk stone.

Ans) Milk-stone, a mineral deposit, may also accumulate on inadequately cleaned surfaces, especially in hard water areas.

7. List some of the fungal species responsible for spoilage of cheese?

Ans) Although the growth of moulds on the surface or in the body of some cheese varieties is essential for ripening, mould growth is generally not desirable. Mould spoilage is usually unpleasant in appearance, and may result in musty taints and

odours. Moulds commonly involved in cheese spoilage include members of the genera *Penicillium, Aspergillus, Cladosporium, Mucor, Fusarium, Monilia and Alternaria.* Yeasts may cause spoilage of fresh cheeses, such as cottage cheese, during storage, resulting in gas production and off-flavours and odours. Yeast may also proliferate on the surface of ripened cheeses, especially if the surface becomes wet, causing slime formation. Yeasts most frequently isolated from spoiled cheese include Candida spp., Yarrowia lipolytica, Pichia spp., *Kluyveromyces marxianus, G. candidum and Debaryomyces hansenii.*