FAQ's

1. **What are the various principle the must be addressed in sampling**

   a) The sample should represent the food as sold to the consumer.

   b) Each part of a divided sample should be the truly representative of the original

   c) The sampling process must not alter the sample in any way that might affect the analysis

   d) Storage and transportation of the sample must not alter the sample it in any significant way – whether through contamination, loss, deterioration or any other means.

2. **What are the equipment needed to carry are sampling?**

   a) A sampling spear
   b) Thief
   c) Temperature monitoring device
   d) Scales
   e) Weight
   f) Camera

3. **What is serial dilution? How it is carried out?**

   Serial dilution is one of the method for microbial isolation technique. In this method samples are serial diluted to get the microbial count. The method involves taking a sample and diluting it through a series of standard volumes of sterile diluent. E.g. distilled water or 0.9 % saline. Then a small measured volume of each dilution is used to make a series of pour or spread. By diluting the sample in this controlled way it is possible to obtain an incubated plate with an easily countable number of colonies (30–100) and then calculate the number of microbes present in the sample.

. It is carried out by the following the protocols.

   a) Draw up 1 ml of a well-mixed sample/culture into the pipette.
   b) Add this sample to the first tube. The total volume of this tube should now be 10 ml. This provides an initial dilution of 10^{-1}.

c) Mix the dilution thoroughly, by emptying and filling the pipette several times.

d) Take a new pipette and draw 1 ml sample of the 10^{-1} dilution and place it in the second tube which all ready contains 9 ml of diluent.

e) Mix well as before. This gives a 10^{-2} dilution.

f) Repeat this for the remaining tubes, removing 1mL from the previous dilution and adding it to the next 9 ml of diluent.

4. What is pour plate and spread plate methods?

a) Pour plate method: A pour plate is one in which a small amount of inoculum from broth culture is added by pipette to the center of a Petri dish. Molten, cooled agar medium in a test tube or bottle, is then poured into the Petri dish containing the inoculum. The dish is gently rotated clock wise for three times and anticlock wise once. This ensure that the culture and medium are thoroughly mixed and the medium covers the plate evenly. Pour plates allow micro-organisms to grow both on the surface and within the medium.

b) Spread plate method: Spread plates, also known as lawn plates. Here a sample is a sample is spread using a spreader on a agar plate.
It result in a culture spread evenly over the surface of the growth medium. It can be used for quantitative work (colony counts) if the inoculum is a measured volume, usually 0.1 mL, of each of a dilution is delivered by pipette.

5. What are advantages and disadvantages of Pour plate and spread plate methods.

The advantages and disadvantages of pour plate and spread plate are.

Technique	Advantages	Disadvantages
Pour plate	Enumeration of all the microbes is possible	Organism which are embedded with in the media may not grow due to lack of oxygen
Spread plate	Strictly aerobic organisms are favored because colonies grow on the agar surface	The sample volume analyzed routinely is a maximum of 0.1 mL Scoring of typical colonies not always easy

6. Write a note on streaking pate method

A sterile inoculation loop is used for preparing a streak plate. This involves the progressive dilution of an inoculum of bacteria or yeast over the surface of solidified agar medium in a Petri dish. The progress of streaking should be in such a way that colonies grow well separated from each other. The aim of the procedure is to obtain single isolated pure colonies. A culture developed from single unaltered colony is called as pure culture. A loop is flamed and then touched to the first area to retrieve a sample of bacteria. This sample is then streaked several times in the second area of the medium. The loop is then re-flamed, touched to the second area, and streaked once again in the third area. The process can be repeated in a fourth and fifth area if desired. During incubation, the bacteria will multiply rapidly and form colonies.

7. **How to perform inoculation on an agar slant?**

Using aseptic technique pick a single well isolated colony with a sterile inoculating loop or needle. Rest the inoculum gently at the lower end of the slant and withdraw it slowly upwards moving it from side to side (the surface of the agar should not be broken). This should leave a streak on the surface of the slant.

8. **How to perform inoculation on an agar stab?**

Agar stab inoculation can be performed using aseptic technique by pick a single well isolated colony with a sterile inoculating stab needle and stab the needle several times through the agar to the bottom of the vial or tube. Replace and tighten the cap. Make sure the tube and cap are well labelled

9. **How to perform inoculation on agar plate?**

Using aseptic technique pick a single well isolated colony with a sterile inoculating loop. Rest the inoculum gently on agar plate. In case of agar plates there is a greater surface area of sterile media that can be exposed to contaminations. The key is to keep as much of the lid over (covering) the open agar plate as possible. Never open the lid on the lab bench when in an open contaminating environment.

10. What is streak plate method

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11. How to obtain a single cell isolation?

Single cell isolation can be isolated using streak plate method. In this procedure cells from a single isolated colony is again subjected to serial dilution and plated. Colonies arising from such plate are considered as a colony from a single cell.

12. List out regulation for sampling.

a. The Poultry Meat (Water Content) Regulations 1983,S.I. 1983/1372
b. The Milk-based Drinks Regulations 1983, S.I. 1983/1514
c. The Animals and Animal Products (Examination for Residues and Maximum Residue Limits) Regulations 1997, S.I. 1997/1729
d. Natural Mineral Water, Spring Water, and Bottled Drinking Water Regulations 1999, S.I. 1999/1540
e. Contaminants in Food Regulations 2003, S.I. 2003/1478
f. Sampling regulations as per FSSAI 2006.

13. Write a note on Sampling plan.

The sample should be taken during normal working hours. Sampling visits should, therefore, be planned as part of the inspection program and timed having regard to all

relevant and available information. Which including hours of operation, hours at which certain foods may be handled and any seasonal factors. It is desirable to sample at different times of the day at manufacturing and packing premises to ensure that samples are obtained from beginning to the end of a batch

14. What is a Stomacher?

Food sample must be homogenized for enumeration of microbial contents. Stomacher, a relatively simple device is required. It homogenizes specimens in a special plastic bag by the vigorous pounding do two paddles. The pounding affects the shearing of food specimens, and microorganisms are released into the diluents. The other method is using a high-speed blending