Q.1 A. FILL IN THE BLANKS (5 marks)

1.Effect of dry heat on starch is called **dextrinisation**.
2. Each gram of carbohydrate is **4 kcal**
3.The measure of acidity and alkalinity of the substance is known as **pH level**.
4. Mixing of two immisble liquid is called **emulsion**.
5. Deficiency of one or more nutrient are called **malnutrition**

Q.1 B. MATCH THE FOLLOWING (5 marks)

1. Fats	a. absence of oxygen
2. Anaerobic	b. Heterogeneous
3. Suspension	c. glycogen
4. Vitamin B2	d. 9 kcal
5. Carbohydrate	e. chillosis

Answer 1 (d), 2(a), 3 (b), 4 (e), 5 (c)

Q.1 C. FIND THE ODD ONE OUT (5 marks)

1. Wheat, bread, **cheese**, dhokla.
2. Nuts, **spinach**,olives, butter.
3. Food hygiene, work place, **personal hygiene,** cleaning area hygiene.
4. Vermiculture, dumping, **trapping**, incineration.
5. Egg, chicken breast, **orange**, soya bean.

Q.2. ANSWER THE FOLLOWING (ANY 3) (15 marks)

1. Give any 5 points of personal hygiene.

- Scrupulous personal cleanliness is essential for those responsible for food storage, preparation, cooking and service
- Food should be touched by hand only when there is no alternative
- Refrain from behavior which could result in contamination of food, for example smoking, spitting, chewing or eating, sneezing or coughing over unprotected food.

2. Explain in details 7 principles of HACCP.
Principle-1: Conduct a Hazard Analysis
Principle-2: Determine the Critical Control Points (CCPs):
Principle-3: Establish Critical Limit (s):
Principle-4: Establish a System to Monitor Control of the CCP
Principle-5: Establish the corrective Action to be taken when Monitoring Indicates that a particular CCP is not Under Control.
Principle-6: Establish procedures for Verification to Confirm that the HACCP System is Working Effectively.
Principle-7: Establish Documentation Concerning all Procedures **and Records Appropriate to these Principles and their Application**.
EXPLIANATION FOR EACH POINT CARRIES MARKS.

3. Write a note on rodents

Ans. Rats and mice are destructive and cause huge loss of stored food commodities. They transmit pathogenic bacteria. Rats and mice are generally most active during twilight hours. If food and wastes are stored and handled properly, the rodent infestation could be reduced or eliminated. They can squeeze past narrow openings and gnaw the edges of wooden doors.

Rodents gain entry into the premises in bags of flour in straw packages, boxes, cartons etc. If proper storage practices are not adopted and things are scattered, rodent infestation is sure to occur. Rats need lots of water, in fact, they drink three times the amount they eat. Signs of rodent infestations are evident by presence of droppings, greasy foot prints and rat odour. Baited traps and other tracking methods could be followed to ensure that rodents are not present in the food area.

Other control measures include:

- Regular checking of new deliveries, stored stock and equipment for signs of infestation
- Storage of open dry foods in solid with close-fitting lids
- Storage of goods off the ground and clear of walls, with adequate space between stocks
- Clear spoilage as soon as possible, and
- Empty bins in the kitchen frequently and keep them clean.

Prevention

Best preventive measure is to correct all dripping taps, repair defective gutters and also make the food unavailable by proper storage of foods in metal containers. The empty cartons, boxes should be stacked on a pallet and away from walls, as rats prefer to move nearer to the walls.

Here, it can be summarized that pest control is essential in any food service establishment because of:

- Preventing the spread of disease
- Preventing the wastage of food
- Preventing damage generally caused by gnawing of electric cables or pipes, and
- Preventing loss of customers who are well-aware and educated about hazards of eating in infested premises.

4. Explain growth curve of bacteria with the help of diagram

Growth Phases:

- The **initial phase** is called the **lag phase** during which there is no growth. The number of bacteria remains constant and the cells gets adjusted to their new environment. Bacteria show an increase in size but not in number.
- In the exponential growth phase logarithmic growth phase the rate of growth increases at a very rapid or logarithmic pace. In this phase the generation time is constant and the growth rate is the highest.
- In the **stationary phase** the rate of multiplication decreases gradually and average generation time increases. During this phase the number of living bacteria remains constant due to the death of some bacteria and the rate of growth equals the rate of death. They may die from lack of nourishment.
- In the **death phase** the number of living bacteria declines rapidly at the same rate at which they grew. The number of surviving cells taper off very gradually. The more vulnerable cells die first and the resistant forms remain for some months or even years. They die because of a change in the environment such as (a) exhaustion of nutrients, (b) accumulation of toxic metabolic waste products, or (d) alteration of pH etc,.

5. .Explain storage of garbage?

Ans. It is important to store garbage correctly before it is disposed off . It should not be left overnight near the kitchen area. The kitchen area is warmer than the other areas and decau is faster near the kitchen. The ideal storage area is in a yard behind the premises . Garbage should be filled in bins and these bins should be kept in the coolest place. Care should be taken to ensure easy cleaning and absence of pests. The garbage storage area should be large enough for the amount of garbage that will accumulate.

In large establishments and places where it is not disposed off frequently, it is stored in the basement at low temperatures.

THE GARBAGE BIN

The garbage bin should have the following characteristics

1. It should be made of metal, preferably galvanized
2. Stoutly constructed and durable
3. Painted or treated with bitumen to prevent rusting
4. Unridged
5. Covered with tightly fitting lids, preferably with a clip to prevent the lid from blowing off.
6. Leakproof
7. Pestproof
8. Easy to clean
9. Of the correct size
10. Adequate in number

6. Write a note on type of bacteria and its reproduction?

Ans. Bacteria area both useful and harmful to humans. They are found everywhere in soil, water and air. They are important to manufacture curds, yoghurts, and cheese. Some bacteria help to leaven idli, dosas and dhokla batter. Many bacteria are pathogenic to humans and animals. Canned foods, fruit juice and alcoholic beverages are spoiled by bacteria.

SHAPE AND SIZE OF BACTERIA:

Bacteria are minute, unicellar organism of variable shape and activity. The size of bacteria cell range from 0.2-10 micron. They can be identified by their shape, size and cell arrangement.

1. Rod shape bacteria: they may or may not have organs called flagella. The bacteria in this group cause typhoid, tuberculosis and food poisoning. They are undesirable in food because their presence may indicate the possibility of other pathogens.

2. Spherical bacterial: They are also called as Cocci

I) Pair of cocci are called diplococci and causes pneumonia

II) Chain of cocci are called streptococci and causes sore throat and tonsillitis.
III) Irregular cluster are known as staphylococci and causes staph food posioning.
IV) Tetrade are cubes of four to eight cocci, causes spoilage of food.
3. Sprial bacteria: they are also called spirilla and cause syphillis which is a sexually transmitted diseases.
4. Comma shape bacteria: they are also called as vibrios and causes cholera.

Reproduction:
Binary fission when conditions are suitable for growth bacteria reproduce by dividing themselves into 2 every 20-30 mins.
When a bacterial cells grows to maximum size a wall appears wall grows further and divides the cell into two new cells. By this division of binary fission. A bacterium can produce 2 million bacterial in 7 hours; therefore the food handler should realize that a single bacterium cans alone cause health hazards.

Q.3. ANSWER THE FOLLOWING (ANY 3) (15 marks)

1. Explain staphylococcus aureus
Ans. Staph food poisoning is one of the most common types of food poisoning caused by the toxin produced by ***Staphylococcus aureus.*** This bacteria is widespread and is frequently found in the throat and nose of 30 per cent of all healthy people and in the nasal discharges of persons recovering from cold.
On the skin, it is present in pimples, boils and infected wounds. Droplets from the nose or throat sneezed or coughed into the air could contaminate air, clothing, handkerchiefs and skin. Hands could be contaminated by soiled handkerchiefs or tissues or by touching the nose or any eruptions on the skin, and could get heavily contaminated with these micro-organisms.
If hands are not washed and scrubbed well, contamination is transferred to food, utensils or equipment during food preparation. Hence, the need for food service personnel to follow proper sanitary procedures in food preparation and practice correct hand habits.
Staphylococci are facultative aerobes and are able to survive without oxygen. They do not form spores. The toxin they produce is heat resistant, therefore, although the bacteria are easily destroyed by heating for ten minutes at 66 °C the toxin may survive heating at 100 °C for 30 minutes.

Like in other bacteria, acid type foods are not suitable for the growth of Staphylococci. However, they are not affected by high levels of sugar or salt and may be found in cured meats.

Symptoms: salivation, nausea, vomiting, abdominal cramps, diarrhoea, sub-normal body temperatures; mortality is extremely low, in severe cases blood and mucous may be found in the stools.

Foods commonly involved:

1. protein-rich foods that have undergone much handling like meat, fish, milk and poultry.
2. cooked foods intended to be eaten cold for example, custards, trifles, cream puddings, sandwiches with egg, ham or meat filling, ham salad, cold cuts.
3. foods exposed to lukewarm temperatures for a few hours.
4. foods insufficiently refrigerated due to large bulk or high refrigeration temperatures
5. left-over foods along with gravy which are not stored at adequately low temperatures.

2. Discuss desirable and undesirable browning reaction

Ans. This type of browning is more common than enzymatic browning, being responsible for changes both desirable and underisble, that take place during the cooking, processing and storage of many foods. This type of browning is also referred to as **"MAILLARD'S REACTION"**. The reaction takes place between the carbonyl group (aldehyde/carbonyl) of reducing sugar and the amino group of protein, amino acid or peptide, when adequate heat is present, it need not involve oxygen.

The brown pigment formed contributes to aroma, flavour & colour of many ready-to-eat cereals, toffees & bakery products.

Millard's reaction can cause deteriorative changes that are highly undesirable. The off-colour that develops is orange juice and dried fruits after long storage are thought to be caused by the browning reaction. These changes could be due to oxygen uptake either during processing or during storage.

3. Define food preservation and explain dehydration

Ans **Removal of Wafer (Dehydration)** Microorganisms need moisture to grow. When the moisture in the food is removed and the concentration of water brought below a certain level, they are unable to grow and spoil the food.' Moisture can be removed by the application of heat as in sun-drying and in mechanical heating or by binding the moisture with addition of sugar or salt and making it unavailable to the microorganisms.

Sun Drying in tropical countries like India, direct rays of' the sun are used Notes for drying a variety of foods, Vegetables and fruits are washed, peeled, prepared and placed on flat bottom trays under in the sun. Vegetables like beans, peas, potatoes, cauliflower, ladies fingers, garlic, onion, and all leafy vegetables can be sun-dried this way. Fruits like apricots, bananas, dates, figs; grapes (raisins), raw mango (amchur), peaches, pears, pomegranate seeds cinardana are also preserved by sun-drying. Fish (Bombay duck-'bombil') and shrimp are dried by exposing them to the sun on the seashore. Preparations using cereals and pulses are also sun dried. An example is "papad" which is a very popular snack throughout the country. As foods dried this way are exposed to dirt, insects and to the air, there is always a risk of contamination and spoilage.

4. What is adulteration and explain the physical method to detect **adulterant?**

Ans. Substance like sand, stones, pebbles, dirt, and mud can be seen and removed easily.

2. Kesari dal is used to adulterate tur dal and chana dal. It has a characteristic shape which is in different form which can be seen and thus kesari dal can be removed.

3. Insect eaten food grain, they are normally light and when soaked in water they will float.

4. Coal tar dyes: They may be present along with used tea leaves to adulterate tea powder these tea leaves are placed on a moistened cloth or on a wet blotting paper. Then the presence of coal tar dye can be seen by reddish color.

5. Grit/ Fine particles of dust: They are normally used to adulterate salt and sugar. If a sample of adulteration of salt or sugar is mixed with water then the grains of salt or sugar will dissolve in water but the grit will not.

6. Iron filling: Normally used to adulterate tea leaves and sometimes semolina. The iron filling can be removed by passing a magnet over the food samples. Due to attraction the tiny particles of iron will adhere to the piece of magnet thereby indicating that the food sample has been contaminated.

7. To detect metalline yellow in turmeric powder, whole turmeric, jaggery takes 2 gms of sample, 5 ml of alcohol and a drop of concentrate hydrochloride acid if a reddish color develop it indicates the presence of metalline yellow.

8. Artificial red color used to adulterate whole red chilies reaches the outside layer of the chilli with a piece of cotton soaked in oil. If the cotton becomes red it indicates the presence of artificial color.
9. Addition of starch powder to milk or butter and a drop of iodine solution to a small quantity of milk or butter. The blue color formed indicates the presence of starch.

10. For coffee powder first make a coffee to decolorize and on discoloring add a drop of iodine solution the formation of blue colour indicates the presence of starch powder in the coffee sample.
11. Take 5 ml of a sample mineral oil and add to 5 ml of lactic acid on heating for 2-3 mins the red colour appears which indicates the presence of argemonic oil which is toxic.

5. Explain any 5 types of additives?
Ans. Antioxdation, fortification, flavouring, flavouring agent, sweetener, colouring, etc,.

6. Differentiate between food infection and food poisoning
Ans:

Food Poisoning	***Food Infection***
• Caused by toxin • Incubation period: two hours • Symptoms: nausea and vomiting diarrhea, usually no fever. • Duration: one day, sometimes longer.	• Caused by living micro-organisms • Symptoms: diarrhea, abdominal pain, vomiting, fever • Duration: one to seven days sometimes longer.

Q.4. ANSWER THE FOLLOWING (ANY 3) (15 marks)

1. Classify nutrient and its function
Ans. **Functions of food**
Food has many functions besides providing energy. They are as follows:
1) Physiological Function
2) Psychological Function
3) Social Function

1) **Physiological Function:** Each nutrients has specific function in the body. The physiological functions performed by food are as follows.
   a) **Providing Energy:** The body needs energy to carry out voluntary & involuntary work, involuntary work includes all process, which are not under the control of our will such as digestion, respiration, circulation & go on contemptuously, we are asleep or a wake, voluntary securities or activities, which are wish to do such as walking, playing games & working requires energy, amount of energy required depend on the nature of activity. Energy required by activities is supplied by carbohydrates & fate.
   b) **Bodybuilding or Growth:** It is one of the most important functions of food. Our body is made of up of millions of cells & cells increase in size & they require energy of the cell growth.
   c) **Maintenance & repair:** The workout cells in the body are replaced by new cells, proteins, minerals & water are the cuqen nutrients required for growth as well as maintenance of all cells & tissue in the body.
   d) **Regulation of body process:** Food regulator under of activities in the body such as beating of heart, maintenance of body temperature, clotting of blood & excretion of wastes. These processes are controlled & carried out by specific nutrients. e.g. vitamin K & Calcium are necessary for clotting of blood.
   e) **Protective function:** Nutrients keep body cells in a healthy condition to ward of infection. They help in a building up body resistance to diseases & help the body restore rapidly from any infection.
2) **Psychological function:** Human beings have emotional needs such as need for love, attention & security. Food can play an important role in full feeling these needs. e.g. a mother can express her love for her child by preparing the child's favorite meal.
3) **Social function:** Food carries a lot of significance; warmth & friendship are expressed through sharing guest food & inviting people to drive. Food is significant part of special occasions & festivals.

2. Write note on Iodine

Ans. Iodine is important for normal functioning of thyroid gland. Deficiency of iodine is associated with many physical and neurological disorders called as **IDD** [Iodine Deficiency Disorders].

1. **Goiter**: It is an enlargement of thyroid gland due to lack of iodine in the body.

2. **Cretinism**: Two types of cretinism are neurological cretinism characterized by mental retardation, deaf and mute and spastic. Other cretinism affects the skin it is characterized by post and dry skin, a swollen tongue, growth retardation and weak muscles. Such children may not be able to overcome this deficiency.

3**. Hypo thyroidism**: only way to prevent deficiency is addition of fortified salt.

3. Give the deficiency of protein

Ans. A reduced protein intake over a prolonged period of time leads to loss of weight, fatigue, anemia, lowered resistance to infection & poor healing of wounds.

1. During pregnancy if a women's diet is deficient in proteins it results in any one of the following:

a] still birth (the baby is born dead)

b] Premature birth

c] A baby born with a specific deficiency disease like anemia.

2. During infancy and childhood a protein deficiency diet would result in protein energy malnutrition (PEM), or protein calorie malnutrition (PCM). These are of two types:

1**. KWASHIRORKAR:**

It results when a child is weaned (introducing new foods to the baby apart from milk). On to the traditional family diet after a prolong period of breast feeding. This traditional diet may be deficient in protein. A child suffering from kwashiorkor is anemic (having low hemoglobin level), anorexic (loss of appetite) and suffer from diarrhea and edema (retention of water in body).

2. **MARASMUS:**

It is the childhood counter part of starvation in child. Its symptoms include an irritable child who does not grow properly is inactive (thin and weak) and has continuous diarrhea. The abdomen or stomach of the child may be shrunken or pot belly with gas formation.

Excess –

1) If protein is consumed in excess it is used as energy or converted into fat & stored in the adipose tissue in the body.

2) Once the body needs have been taken care of, the excess protein is deaminated by the liver & urea is synthesized. The kidneys have to work

more to excrete the additional amount of urea. A high protein intake is an unnecessary burden on two vital organs. i.e. liver & the kidneys. If these organs are diseased toxic wastes tend to accumulate in the body.
3) High protein diet increases the loss of calcium through urine.
4) When animal protein is a major part of the high protein diet, there is a risk of high blood levels of cholesterol.

3. Classify carbohydrate and give its functions?

1. **MONOSACCHARIDE:** These are the simplest forms of carbohydrates found in nature. Three monosaccharides are of importance in human nutrition they are glucose, fructose and galactose.

a] **GLUCOSE:**

It is also known as dextrose or corn sugar, it is less sweet as compared to cane sugar and it is soluble in hot and cold water. It is found in fruit like grapes, berries and vegetable like sweet corn, carrot etc. it is commercially prepared from corn syrup and is available in the crystallized form. It is the chief end product of digestion of disaccharide and polysaccharide. It is the only form in which the brains obtain energy.

b] **FRUCTOSE:**

It is highly soluble and available in crystalline form. It is sweeter than cane sugar and is found in honey and ripened fruit. In human body it is converted to glucose & oxidized as a source of energy.

c] **GALACTOSE:**

It is found fairly in nature and also from the hydrolysis of lactose which is found in animal milk.

2. **DISACCHARIDE:**

They are the sugar formed when two molecule monosaccharide combine together with a release of one molecule of water in presence of dilute hydrochloric acid,. They include maltose, lactose and sucrose.

a] **MALTOSE:**

It is also known as malt sugar and found in germinating seeds like barely. Maltose along with dextrin is used as a carbohydrate. In the body maltose is formed during digestion of starch.

Glucose + glucose ⟶ maltose

b] **SUCROSE:**

It is also known as table sugar and found in sugar cane and beet root and also is some fruits & vegetables. It is made up of one molecule of glucose and one molecule of fructose. It is most common of all diasacchacedes

Glucose + Fructose ⟶ Sucrose.

c] **LACTOSE:**

It is known as milk sugar. It is found in human and animals milk and is made up of galactose and glucose.

Glucose + Galactose ⟶ Lactose.

It is the least sweet of all sugars & is easily fermented to lactic acid by lactic acid bacteria while preparing curds & cheese. Lactic acid which is formed from lactose helps in setting curds.

OLIGOSACCHARIDES : They are composed of three to ten monosaccharide units linked to each other by the removal of a molecule of water. They are not as common in food as the mono, di & polysaccharides, but are formed during breakdown of starch into simple sugars e.g. raffinose & stachyose.

3. POLYSACCHARIDE:

These polysaccharides take a long time for digestion. They include starch, cellulose, hemicelluloses and pectin. When more than one molecule of monosaccharide combines together it releases one molecule of water forming polysaccharide. The number of glucose units, their arrangements, & linkage to one another influence the properties of the polysaccharide.

a**] STARCH:**

It is the storage form of carbohydrate found in plant. Each molecule of starch is made up of numerous molecule of glucose or monosaccharide linked together. They form approximately half the dietary, carbohydrates which are consumed. They are present in plenty of amount in cereals, pulses, tapioca sago, root & tubers.

b] **GLYCOGEN:**

It is called as animal sugar because it is only storage form or carbohydrate in human being and in animal. Carbohydrates are used in muscle and in liver. Muscle glycogen is used directly for voluntary activities. While liver glycogen is converted into glucose and is transported through the blood stream to the tissue for involuntary activity. Approximately 340 gm. of glycogen is stored in the body. However animal liver or muscle is not a source of glycogen in the diet as it is immediately converted to lactic acid when the animal is slaughtered.

FUNCTIONS OF CARBOHYDRATES:

1. The main function is to serve as a source of energy. Each gram of carbohydrate provides 4 kcal of energy. It is the cheapest source of energy
2. Protein sparing action – Carbohydrates spare proteins from being broken down for energy and are used for body building and repair. In carbohydrate deficient diets, proteins meant for bodybuilding and

repair are oxidized to meet the most important & first need of the body i.e. energy.

3. Carbohydrate is also essential for the normal break down of fats.

4. Cellulose and relative compounds help in the elimination of waste product by stimulating the peristaltic action of the gastro-intestinal tract. Dietary fiber plays an important role of increasing feacel mass by absorbing & holding water.

5. Glucose is the soul form of energy required for the proper functioning of the brain, muscle, and nerve and lung tissue. When the glucose level in blood falls, the brain does not get energy & conclusions may occur.

6. Lactose is less soluble than any other sugar it remain in the intestine for a longer period to stimulate the growth of certain beneficial bacteria. This bacterial flora helps in synthesis of B-complex vitamins in the gut.

7. Carbohydrate rich food like cereal also provide sufficient amount of protein, mineral and complex vitamin like B1, B2, B3.

8. Fiber also helps in lowering blood cholesterol by binding bile acids & cholesterol.

4. Write a note on iron

Ans. It is found in the body as hemoglobin (blood) myglobin (muscle). Iron in the body exists along with the protein molecules. The human body contains 3-5 gm of iron of which 70% is in the circulating hemoglobin.

FUNCTION :

1. Hemoglobin and myglobin helps in transport of oxygen through blood and storage in the muscle.
2. Iron is required as a factor for conversion of β carotene into an active vitamin A.
3. It is required for the synthesis of collagen.
4. It helps in specific brain functions such as a good attention span & capacity to learn memorize.
5. It helps in detoxication of drugs and other toxic substance in the liver and intestine.

5. Give the deficiency of B1

Ans. In mild deficiency loss of appetite (anorexia), fatigue, irritability, depression, indigestion and constipation occur.

Severe deficiency causes beriberi

"DRY BERIBERI" Here the peripheral nerves of the legs and arms are affected first (pins and needles sensation in extremities. Calf muscles

become tender and there is numbness in the toes and ankles. There is restlessness, sleeplessness, anorexia, vomiting and

"WET BERIBERI" In addition to the symptoms seen in the dry beriberi, edema, in legs and in between cardiac muscle fibers is observed. These changes in the heart muscles lead to enlargement of the heart.

Other symptoms include breathlessness, loss of appetite and dermatitis.

Q.5 WRITE SHORT NOTE ON (ANY 3) (15 marks)

1. Function of food.

Physiological Function: Each nutrients has specific function in the body. The physiological functions performed by food are as follows.

a) **Providing Energy:** The body needs energy to carry out voluntary & involuntary work, involuntary work includes all process, which are not under the control of our will such as digestion, respiration, circulation & go on contemptuously, we are asleep or a wake, voluntary securities or activities, which are wish to do such as walking, playing games & working requires energy, amount of energy required depend on the nature of activity. Energy required by activities is supplied by carbohydrates & fate.

b) **Bodybuilding or Growth:** It is one of the most important functions of food. Our body is made of up of millions of cells & cells increase in size & they require energy of the cell growth.

c) **Maintenance & repair:** The workout cells in the body are replaced by new cells, proteins, minerals & water are the cuqen nutrients required for growth as well as maintenance of all cells & tissue in the body.

d) **Regulation of body process:** Food regulator under of activities in the body such as beating of heart, maintenance of body temperature, clotting of blood & excretion of wastes. These processes are controlled & carried out by specific nutrients. e.g. vitamin K & Calcium are necessary for clotting of blood.

e) **Protective function:** Nutrients keep body cells in a healthy condition to ward of infection. They help in a building up body resistance to diseases & help the body restore rapidly from any infection.

4) **Psychological function:** Human beings have emotional needs such as need for love, attention & security. Food can play an important role in full feeling these needs. e.g. a mother can express her love for her child by preparing the child's favorite meal.

5) **Social function:** Food carries a lot of significance; warmth & friendship are expressed through sharing guest food & inviting people to drive. Food is significant part of special occasions & festivals.

2. Emulsion and emulsifying agent

Ans. **EMULSION**

An emulsion is defined as colloidal substance in which both the dispersed phase and the dispersion medium are immisible liquids.

EMULSIFYING AGENT

To obtain a stable emulsion a small quality of a third substance is added along with the two immisible liquids. The third substance is called as an emulisifying agent. Emulisifying agent forms a protective layer around the dispersed phase droplet and prevents coagulation.

3. What are flavor and give any 3 types of flavour

Ans. It is the substance used in cooking to add a new flavor or modify the original flavor.

Types: ANY THREE TYPES OF FLAVOR CAN BE EXPLAINED.

4. Yeast and its reproduction

Ans. Yeast is unicellular & found naturally in soil & dust Yeast is much larger in size than bacterial cell. Size of yeast is 5-10 micron

REPRODUCTION:

They reproduce either asexually or by budding. During budding a small outgrowth appears on the mother cell. This bud grows in size and breaks from the mother cell. Budding is common method for reproduction in yeast.

Yeast is able to ferment sugar to alcohol and carbon dioxide. This is very important to prepare bread and alcoholic drinks. Temperature of around 25°c to 30 degree Celsius are best for their growth. They are not pathogenic they require a moisture level above 20% to survive. They spoil dry fruits, fruit juices, honey, Soya sauce and squashes.

5. Functions of fats:

1. **Satiety Value**: Fats tend to leave the stomach relatively slowly. This delay in emptying time of the stomach helps to delay the onset of hunger sensation and contributes to a feeling of satisfaction after a meal.
2. **Palatability:** Fats improves palatability of a meal i.e. it makes a preparation tasty. It improves the flavour as most of the flavours are fat soluble.

3. **Lubricating Effect**: They help in lubrication of foods making their ingestion easier.
4. **Energy Reserve**: Body fat represent the primary force in which energy is stored in the body, particularly in the adipose tissue. This body fat is used as a source of energy, when the caloric intake is less than the requirement. Fats are a concentrated source of energy. 1 gm of fat / oil gives 9 kcal.
5. **Body Regulator**; Fat is an essential constituent of cell membranes and regulates the absorption and excretion of nutrient by the cell.