OMEGA TERM E – NOTE FOR SS1 FOODS AND NUTRITION

Scheme of work

Weeks topics

1. Revision/ food hygiene

-food borne diseases, food sanitation law, food laws regulatory bodies e.g. NAFDAC, SON etc.

2. Cooking of food – definitions, reasons for cooking foods

- Methods of heat transfer

- Methods of cooking- moist heat method, definitions, advantages and disadvantages etc.

3. Dry heat method- definitions, advantages and disadvantages etc.

(b) Frying- types of frying, general rules for frying, advantages and disadvantages.

4. Food study: cereals/ grains – nutritive values of cereals and grains.

- processing

-high and low extraction rate flour, cooking methods etc.

5. Legumes/ pulses

- Importance \, nutritive value, cooking methods and dishes made from legumes

6. Practicals on cooking methods, cereals and legumes.

7. Vegetables- types, nutritive values, factors affecting choice of vegetables, preparatory and serving of vegetables.

8. Fruits – types of fruits, nutritive value of fruits, factors affecting choice of fruits.

9. Practicals on fruits and vegetables

10. Meat cookery- types of meat from different animals, nutritive value of meats, methods of cooking meat.

11. Revision.

12. Examination**.**

WEEK 1:

FOOD HYGIENE

Food hygiene is the observance of sanitary rules by food handlers to prevent contamination, food poisoning and food borne diseases.

Apart from kitchen and personal hygiene, it is important that all foods should be kept clean. The food rich in nutrients is also a good environment for micro- organisms to thrive. The spoilage of food can be caused by the following ways:

1. Micro organisms
2. Food enzymes
3. Chemical reactions on food.

Microorganisms spoils food by making use of nutrients thereby causing their decay e.g. bacteria, mould and yeast. Food enzymes could bring about spoilage by promoting reaction that could lead to the decomposition of the food components.

The presence of chemicals in the food can also lead to spoilage of food or enhance the activities of microorganisms and food enzymes; be sure that food stuffs purchased are wholesome and free from traces of contamination.

RULES FOR FOOD HYGIENE

1. Buy food stuffs from a clean environment or market.
2. Store perishable and non-perishable foods correctly.
3. Cover food with a good lid.
4. Use clean water for cooking.
5. Cover food during preparation to prevent flies from landing on it.
6. Preserve left over food well.
7. Avoid buying dented or swollen canned food stuffs.

FOOD BORNE DISEASES

The consequence of consumption of any contaminated foods are the development of diseases called food borne diseases. These diseases can be classified into two:

1. Food poisoning.
2. Food infection.

FOOD POISONING: refers to an illness caused by toxin or poison which are usually produced by micro-organisms as a result of chemicals in the food e.g. salmonella.

FOOD INFECTION: refers to an illness caused by a pathogenic organism carried by the food and transmitted to man e.g. staphylococcus, clostridium botulin.

While an organism that causes food infections are called salmonella, the presence of presence of poisonous chemicals in food can also lead to food poisoning in the food such as lead, mercury, cobalt etc. food poisoning or food infection can either be mild or severe: when it is accompanied by intestinal pain and subdued after some hours, it is referred to as being mild. In severe cases, the hospital should be consulted as quickly as possible because it can lead to death.

Symptoms are; stomach upset, frequent stooling, may result to death.

FOOD SANITATION LAW.

Food sanitation law are the rules regulations made by the appropriate government authority with respect to hygienic handling of food to prevent the consumers from purchasing contaminated food. In Nigeria the federal government promulgated a decree that made consumers to know how to avoid buying contaminated food and also made provision for its enforcement and prosecution of offenders.

The laws includes:

1. No person should sell any article of food which has in it or upon it any poisonous or harmful substance.
2. If it is unfit for human consumption.
3. If it consists of whole or in part any filthy, disgusting, rotten or diseased substance.
4. No person should sell any article of food or any drug that is adulterated.
5. No person should sell any article or food which was manufactured, prepared, preserved, packaged or stored under unsanitary condition.

EVALUATION: 1. state the differences between food poisoning and food infection.

2. State 2 food sanitation law.

ASSIGNMENT: state the functions of NAFDAC and standard organization of Nigeria.

**WEEK 2:**

**METHODS OF COOKING**

Cooking can be defined as the preparation of food to bring about both physical and chemical changes such as softening of cellulose in plant tissues. There are different ways of cooking food, some foods can be cooked by 2 or more cooking methods that give the food a different taste, texture and appearance.

REASONS FOR COOKING FOOD

1. To make food safe for consumption.
2. To make it soft and easier to swallow for digestion.
3. To make it more attractive or to improve its appearance.
4. To introduce varieties in the diet.
5. To reserve food later use.
6. To derive new flavors and so stimulate appetite.
7. To destroy micro organisms that cause spoilage.

METHODS OF HEAT TRANSFER

1. CONDUCTION: This is the transfer of heat in solid mediums e.g. heat from source to cooking pots and pans.
2. CONVECTION: transfer of heat in liquid medium e.g. steaming and boiling.
3. RADIATION: transfer of heat in an enclosed medium in an enclosed space e.g. grilling and baking.

Some foods are cooked by moist heat method while others are done by dry heat method and fat frying method. Moist cooking include:

1. Boiling
2. Stewing.
3. steaming
4. Braising.

Dry cooking includes:

1. Roasting.
2. Baking.
3. Grilling.

BOILING: boiling is the process of cooking food in sufficient water that is heated to boiling point (1000C). The heat is reduced and the cooked food is left to simmer in a covered pan until it is cooked.

TYPES OF BOILING

1. Add water to the food so that the stock is strained from the food. E.g. boiling of yam and plantain.
2. Allow the food to absorb the water used in cooking e.g. rice, beans.
3. Mix the food with water before cooking as in the preparation of yam flour, corn food, porridge etc.

STEWING: stewing is cooking food slowly or at a low heat in a small quantity of water in a covered pot for a long time. It is commonly used for making soups and stews.

STEAMING: steaming is the method of cooking food in the steam from boiling water, there is no direct contact between the food and the boiling water. E.g. moi-moi (bean pudding), canary pudding.

EVALUATION: a. explain the method of heat transfer.

1. State 5 reasons for coking food.

ASSIGNMENT: state the advantages and disadvantages of the moist heat method of cooking.

**WEEK 3: COOKING METHODS CONTD.**

DRY HEAT METHOD

BAKING: it is cooking food in dry heat in an enclosed space. The air in the enclosed space is heated up to the required temperature. Baking is done in the oven e.g. bread, biscuits, cakes, pastries, pudding etc.

GRILLING: grilling is cooking food over, under, or in front of a smokeless fire. Grilling can be done beneath the glowing reflector of a gas or electric grill. Examples of grilled foods are thin slices of meat, sausage, bacon, chicken parts etc.

ROASTING: this is cooking food in a dry heat by:

1. An open fire or overheated charcoal e.g. roasted maize, plantain etc.
2. Heated ash or sand e.g. roasted yam, groundnut, potatoes etc.
3. In an oven or enclosed space with hot fat or oil poured over the food e.g. Roasted chicken, roasted meat etc.

FRYING: it is coking food in hot oil.

TYPES OF FRYING

1. French/ deep frying
2. Shallow fat frying
3. Dry fat frying.
4. Sautéing fat frying.
5. FRENCH FAT FRYING: is frying in plenty of fat/ oil. A deep pan or pot is used sometimes. A food can be fried in its own oil e.g. bacon.
6. SHALLOW FAT FRYING: the food is fried in a little oil or fat. A frying pan is used and the oil just covers the bottom of the pan. Foods cooked by this method are pancake, egg, meat etc.
7. DRY FAT FRYING: it is used for food that already contains plenty of fat. The fat melts and run out of the food. E.g. bacon, sausages and other fatty foods.
8. SAUTEEING: this is tossing food lightly in a small amount of fat or oil. E.g. some vegetables.

RULES FOR DEEP FAT FRYING

1. Use a deep fryer.
2. Do not fill the fryer more than half way with oil.
3. Lower the food gently into the hot fat.
4. Drain fry foods before serving.
5. Do not over heat the pan with the food as this would considerably lower the temperature before putting food in.
6. When food is cooked, turn off the heat and allow the oil to cool before straining it.

EVALUATION: state and explain the types of frying.

ASSIGNMENT: write the advantages and disadvantages of dry heat method of cooking.

2. State the advantages and disadvantages of frying.

**WEEK 4:**

**FOOD STUDY**

CEREALS/ GRAINS

Cereal is a broad term used for those plants belonging to the grass family while the seeds produced by the grass family are known as grains. Cereals and grains are largely dependable diets for both man and animals and birds alike. The cereals form the staple food to most countries such as millet, rice, maize, wheat, guinea corn, oats etc.

The nutritive values of cereals and grains are largely carbohydrate which varies from seventy to eighty. A refined cereal contains higher carbohydrates than a whole grain cereal which contains more protein and fats

PREPARATION OF CEREALS

Milling is the first step in the utilization of cereal, it is the process of crushing the grain into flour by passing into the machine. Dried maize can be milled to produce maize gruel (pap).

Guinea corn and millet can also be prepared in this way. Rice is milled to remove the husk to produce brown rice, polished rice. Wheat is also milled into flour before being prepared as food. However some cereals are consumed without milling e.g. maize is boiled, roasted and consumed as snacks.

The proportion of the whole grain used to make flour is known as the extraction rate.

LOW EXTRACTION RATE FLOUR: they are produced from cereals in which all the layers are removed, they are very white and low in nutrient content.

HIGH EXTRACTION RATE FLOUR: they are produced from partially milled cereals that still retain some of the outer layer. They are not as white as the low extraction rate flour but are better in nutritive value.

The flour obtained from cereal grain can be mixed with other ingredients and can be used in baking as in bread, cake, biscuit etc.

PARBOILING: this involves soaking and steaming rice grains still in their husks. The rice is then dried and milled.

The steaming process causes some of the vitamin B group to diffuse into the white interior and harden the grain. Parboiled rice retains its embryo and some of its outer layer which makes it richer in vitamins and minerals.

METHODS OF COOKING CEREALS

1. Boiled meal e.g. maize, rice
2. Roasted meal: as snacks e.g. maize.
3. Maize can be milled and used for breakfast cereal like extracted flakes, rolled and shredded cereals.
4. Cooked cereals e.g. pap (ogi), oats etc. millet, wheat and rice are also made into porridge.
5. Pasta is made from wheat E.g. spaghetti, macaroni, noodles etc.

EVALUATION: explain high and low extraction rate of flour.

B. describe the parboiling method of local rice.

ASSIGNMENT: draw and label the structure of a typical cereal.

**WEEK 5:**

**LEGUMES/ PULSES**

Legumes are the edible seeds, parts of leguminous plants which are used as food. The edible part of the leguminous plant i.e. the legume is divided into two groups which are;

1. Pulses.

2. Oil seed.

The dry edible seed of cultivated legumes is referred to as pulses such as Beans, peas, lentils while oil seeds are the legumes basically used for their oil content which can be extracted by processing or by solvent extraction. Examples are Groundnuts, soya beans and cottonseeds.

The main source of protein is found in legumes which is the major source of protein for the vegetarians. It supplies the body with vitamins and mineral element. It should be well cooked to remove anti-nutritional factor present before consumption.

**FACTORS TO CONSIDER WHEN PURCHASING LEGUMES.**

1. It must be fresh
2. It should be free from insect attack.
3. It should be free from moulds which is as a result of improper drying.

**TYPES OF BEANS**.

1. Lima beans.

2. Soya beans

3. Green peas

4. Lentils

**METHOD OF COOKING LEGUMES**.

1. **Boiling**; beans and groundnut.

2. Roasting; groundnut

3. Steaming; beans pudding

4. Stewing; Groundnut Stew and Beans Stew

5. Frying; Akara.

**DISHES MADE FROM LEGUMES**.

1. **BEANS**;

Ekuru

Ofuloju

Igbalo/Jogi

Moi-Moi.

**EVALUATION**; State the nutritive value of legumes.

**ASSIGNMENT**; Draw and label the structure of a typical legume.

**WEEK 6:**

**PRACTICAL ON COOKING METHODS: CEREALS**

**AND LEGUMES**.

**WEEK 7; VEGETABLES.**

**V**egetables are edible parts of plants such as roots, leaves, stem, etc. They are highly perishable food stuff and seasonal.

**CLASSIFICATION OF VEGETABLES**.

1. Roots or tubers; Cassava, cocoyam, potato, yam, carrots.

2. Green leafy vegetables; Spinach, okra, waterleaf, lettuce, cabbage.

3. Bulbs; onions, carrots, garlic, turnips, shallots.

4. Pulses and legumes; beans, peas nuts.

5. Miscellaneous vegetables; cucumber, pepper, lettuce, pumpkin.

**NUTRITIVE VALUE OF VEGETABLES**.

Vegetables especially the leafy ones are rich in B-complex vitamins and also contain a full amount of vitamin C. Vegetables also contains Carotene which is precursor to vitamin A. They serve as a mild laxative for easy defication.

**SOURCES OF MINERAL ELEMENTS**.

Vegetables are good sources of minerals such as iron, calcium, sodium, sulphur, phosphorus.

**NUTRITIVE COMPONENT OF VEGETABLES**.

1. Protein; pulses are rich in second hand protein, the other classes of vegetables contain body building materials.

2. Carbohydrate; are present in form of starch, sugar and cellulose.

Starch is the chief nutrient of roots vegetable such as cassava, sweet potatoes, cocoyam, and yams of all kinds.

Sugar; there are some sugar in carrots and sweet potatoes.

3. Mineral salts; potassium, iron, calcium, salt, phosphorus, are all present in some leafy vegetables, pulses and roots.

4. Vitamin A, B, C; they are present in vary quantities in vegetables. Vitamins is present in tomatoes, green leafy vegetables, green pepper, germinated pulses, and all green and yellow vegetables contain vitamin A and B-complexes.

Vitamins are present in most pulses.

1. Water; All vegetables contain a large percentage of water.

**FACTORS TO CONSIDER WHEN CHOOSING LEAFY**

**VEGETABLES**.

1. The color should be attractive and look crisp and fresh.

2. They should be free from Insect attack.

3. The leaves should not drop when the bunch is shaken.

4. The mid strip of large leaves should snap sharply when broken.

**EFFECTS OF HEAT ON LEAFY VEGETABLES.**

**1**. Loss of nutrient in some vegetables.

2. The color changes i.e. in leafy vegetables.

**EVALUATION**; Classify the types of vegetables and give examples of each.

**ASSIGNMENT**; State major differences between fruits and vegetables.

**WEEK 8:**

**FRUITS.**

Fruits are the fleshy seed bearing of a plant. Fruits can be divided into two broad groups;

1. Fresh fruits.

2. Dry fruits.

Fresh fruits can further be classified into;

1. Soft fruits; Bananas, guavas, berries.

2. Hard fruits; apples, pears, melon, mangoes, plums.

3. Citrus fruits; orange, grapefruits, pineapple, watermelon, lime, lemon.

Dry fruits include; figs, apricot, dates, prunes.

**NUTRITIVE VALUE OF FRUITS**

Fruits contains ascorbic acid and citric acid and almost all fruits contain some amounts of vitamins. Fruits contain Vitamin C and Vitamin A. Principally, other vitamins found in fruits are the B complex vitamins and small quantity of carotene.

1. SUGAR.

2. CELLULOSE

3. STARCH.

The cellulose however is indigestible, so it adds bulk to the faeces making foods act as a mild laxative. The amount of sugar in the fruits depends on the level of ripeness of the fruits. Glucose and Fructose are the chief sugars found in fruits. Fruit contain little or no protein, fats, or mineral salt but they contain different types of organic acid. The acid are responsible for the sourness of unripe fruits. As the fruits ripens, the concentration of the acid reduces,

The names of the acids present in fruits are ASCORBIC ACID, CITRIC ACID, MALIC ACID, TATARIC ACID, and OXALIC ACID.

**FACTORS TO CONSIDER WHEN CHOOSING FRUITS.**

1. It must be fresh**.**
2. It must be free from insect infestation.
3. It must not be overripe.
4. It must be firm to touch.
5. Buy fruits in season to get it cheaper and fresh; banana pawpaw, citrus, are common during rainy season while guava and orange are common during dry season.

**METHODS OF SERVING FRUITS.**

Fruits are served while fresh .It can be served raw and it can be served ripe. Unripe fruits are fruits with hard seeds may be cooked. The juice can be squeezed out like the citrus fruit and served beautifully, in a cup or a jug .It can also be cut into shapes like fine cubes ,sliced round(pineapple rings),Triangle shaped etc.

Jams and Jellies can be made from fruit and can also be served as FRUIT SALAD.

**EFFECTS OF HEAT ON FRUITS.**

1. The vitamin C content is partially or completely destroyed.

2. The cellulose is softened, therefore the fruit is softened and more digestible.

3. Pectin is released which is necessary for the setting of jams and jellies.

4. Mineral salts are leaked out in the water but not lost in syrup made from fruit, cooking water is served along with the fruits.

5. Bacteria present in the food are destroyed in the process of cooking.

**METHOD OF PREPARING FRUITS**.

1. RAW FRUIT;

Most fresh fruits when ripened can be served raw, however when fruits are to be served raw. Dirt and micro-organisms to be removed through thorough washing; when fruits are to be peeled wash before peeling and wash after peeling e.g., pawpaw ,orange ,watermelon.

1. COOKED FRUIT;

Fruits can be cooked to create variety of meals. It could be more palatable especially when it is unripe. It increases its keeping quality and soften cellulose. Examples of Green Apple; they are cooked to improve starch content.

1. **STEWING METHOD.**

Food can be stewed with water or sugar syrup. Those that are cooked in sugar retain its shape to avoid but those that are cooked in water lose their shapes. During, cooking but if the sugar concentration is absolute the same as concentration of soluble material of fruits tend to hold its shape during cooking. But if the sugar concentration in the syrup is higher than that of the fruits, Water is withdrawn from food by osmosis; the food shrinks and becomes tough.

1. **BAKING;**

Fruits can be baked e.g. apple are prepared for baking by coring and slicing the skin at the right angle to as to avoid splitting during baking.

**EVALUATION**; Differentiate between dry and fresh fruits.

2. State four effects of heat on fruits.

**ASSIGNMENT**; List the various fruits in your locality and indicate the seasons at which they are produced.

**WEEK 9:**

**PRACTICALS ON FRUITS AND VEGETABLES**.

**WEEK 10 & 11**

**REVISIONS AND EXAMS**