UNIT-VI
METHODS OF COOKING

SOLUTIONS

TEXT BOOK QUESTIONS AND ANSWERS

Q1. Select the best methods of cooking for each of the following:

Rice, Wheat flour, Chana dal, Eggs, Apple

Ans: **Rice -** Boiling, wet steaming, simmering

Wheat flour - Shallow fat frying, deep fat frying, grilling/broiling

Chana dal - Pan broiling or roasting, Boiling

Eggs - Boiling, shallow fat frying

Apple - Stewing

Q2. Name some prepared foods which are cooked by deep fat frying.

Ans: *Samosa, papads, chips, kachouri, pakoda & bonda* are made by deep fat frying.

Q3. What temperatures are required for the following methods of cooking?

Baking, Boiling, and Stewing.

Ans:

Baking - 120˚C- 260˚C

Boiling - 100˚C

Stewing - 98˚C

Q4. Lists down the cooking utensils in your kitchens.

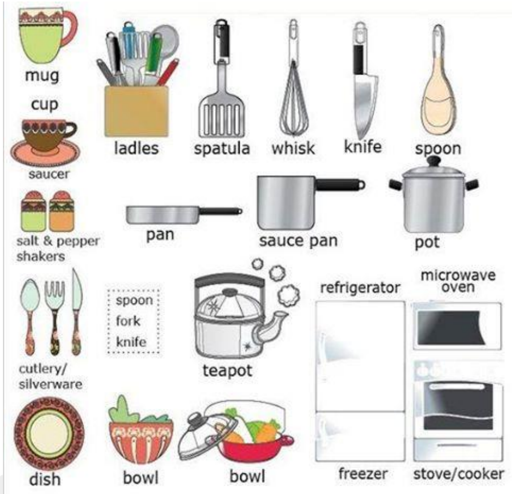
Ans:

Students assignment question:

1. Non-Stick Frying Pan
2. Saucepan
3. Stock Pot
4. Sheet Pans
5. Glass Baking Dish

Utensils

6. Knives



7. Measuring Spoons
8. Measuring Cups
9. Wooden Spoons
10. Fish Turner
11. Peeler
12. Whisk
13. Tongs

Dishes, Tools, And Gadgets

14. Cutting Board
15. Colander
16. Prep Bowls In Every Size
17. Can Opener
18. Microplane Zester
19. Immersion / Stick Blender
20. Salad Spinner

Q5. Draw the diagram of the following common cooking utensils

Pressure cooker and Frying Pan

Ans: **Skill development question for students**

1. Pressure cooker

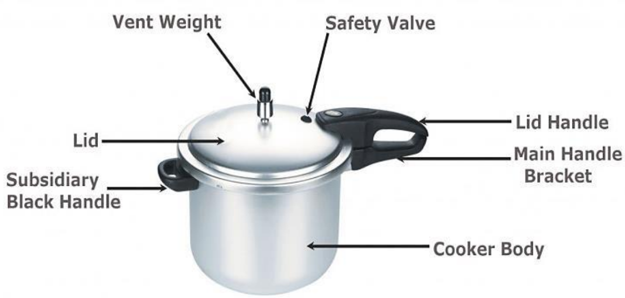


Fig. A Pressure cooker

2. Frying pan

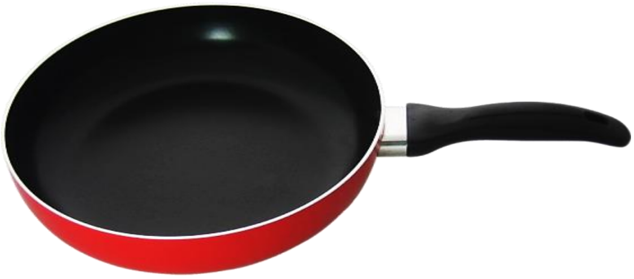


Fig. A Frying Pan

Q6. What are the disadvantages of cooking?

Ans: **Disadvantage of cooking** – Thiamine, which is heat sensitive, may be lost during cooking. Water soluble nutrients get dissolved into the water during cooking. Vitamin A and C content may be reduced due to oxidation and heat.

Quality of protein may be reduced due to destruction of certain amino acids during cooking e.g. bread, crust, has less quality of protein compared to the inside portion.

Q7. Write short notes on stewing, steaming and pressure cooking.

Ans: **Stewing** – This method involves cooking in a pan with a tight fitting lid, using small quantity of water to cover only half the food. The food above is cooked by the steam generated within the pan. The water is brought to boiling point and then the heat applied is reduced to maintain the cooking at simmering temperature i.e. 98˚C. It is a slow method of cooking, taking from 2 to 4 hours depending upon the nature and volume of the food being stewed. It is a way to make tougher cuts of meat palatable and tender it's also a way to retain the maximum nutritional value of the food you cooked. Stews also make dried beans edible and soft.

Steaming – It is a moist heat cooking method. In this cooking process, the food is put into a steamer, which is a cooking utensil that consist of a vessel with perforated bottom placed over one (vessel) containing water as water boils, steam rises and cooks the food in the upper (perforated vessel). The food is not in contact with the water or liquid around. The temperature of cooking is 100˚C.

Pressure cooking – It is the process of cooking food at high pressure, employing water or water based cooking liquid, in a sealed vessel known as pressure cooker. It works expelling air from the vessel and trapping the steam produced from the boiling liquid inside. This rises the internal pressure and premise high cooking temperature. The temperature of pressure cooking is 121˚C. This higher heat helps the food to cook faster. Almost every food that can be cooked in water can be cook in pressure cooker.

Q8. State the effects of cooking on the nutritive value of the following vitamins and minerals, Vitamin A, Vitamin B, Vitamin C and Iron.

Ans: Vitamin A - It is not soluble in water, so no loss occurs by discarding the cooking water. There is only slight destruction of Vitamin A and carotene when foodstuffs are cooked in water, but on frying or roasting considerable loss occurs.

Vitamin B1 and B2 - As both are water soluble much loss occur when the water in which they are cooked is discarded. Adding soda for cooking dals causes high loss of the vitamins. High temperature of cooking causes considerable loss.

Vitamin C - The loss of vitamin C during cooking of vegetables in mainly due to oxidation and this is accelerated by exposure to air. High acid content prevents loss to a certain extent. Discarding water accounts for a considerable amount of loss of vitamin C. Contact with copper vessel also accelerated the loss of vitamin C. The quantity of vitamin C loss from vegetables during cooking varies from 10 to 60 per cent in the food, depending on the vegetables cooked and the method of cooking.

Iron - There is particularly no loss during cooking of foods except when the cooking water is discarded. In general cooking tends to increase the ease with which the body can absorb iron from foods. Further, dietary iron may be increased due to amounts picked up from iron knives used for slicing vegetables and from cast iron pans commonly used for cooking them.

Q9. Lists down the advantages of cooking.

Ans: Advantages of cooking –

(i) Improves the taste and food quality: Cooking improves natural flavour and texture of food. For example roasting groundnuts, frying onions and *papads*, cooking rice and roasting coffee seeds improve the flavour. Cooking meat with spices rice with spices in making *pulao,* frying cashewnuts in ghee, addition of turmeric, curry leaves, pepper etc., blend flavour with one another during cooking.

Too much of cooking lowers the flavour as flavouring compounds are volatile. Over cooked *pulao* does not taste as good as well cooked *pulao.*

(ii) Destruction of microorganism: Microorganisms are present everywhere and some are useful in making curd, cheese and bread. Some are harmful and cause infections or produce toxins.

One of the most important methods of protection of food against harmful microorganism is by the application of heat. Cooking food to the required temperature for a required length of time can destroy all harmful micro-organism in food.

(iii) Improves digestibility: Cooking softens the connective tissue of meat and the coarse fibers of cereals, pulses and vegetables so that the digestive period is shortened and gastro intestinal tract is less subjected to irritation. Cooking improves the texture hence it becomes

more chewable. Cooking also burst the starch granules of pulses and cereals so that the starch digestion is easier rapid and complete. When dry heat is applied to starches they are converted to easily digestible dextrins. Cooking increases the access to enzyme and improves digestibility.

(iv) Increase variety: By cooking, same food can be made into different dishes. For example, rice can be made into plains, *pulao*, lemon rice, biryani, etc. Wheat can be made into *chapatti, puri, paratha or halwa.*

(v) Increase consumption of food: Cooking improves the texture and makes the food chewable. Improvement in texture and flavour by cooking increases the consumption of food to meet our nutritional requirement.

(vi) Increase availability of food: Trypsin inhibitors present in soyabean and duck egg get denatured on cooking and availability of protein is improved. Cooking increases the quality of protein by making some amino acids available to the body.

EXTRA QUESTIONS & ANSWERS

Q1. Cooking can be rapidly completed in deep fat frying because the temperature used is..........°C.

(A) 150-170
(B) 170-200
(C) 180-220
(D) 190-250

Ans: (C) 180-220

Q2. What temperature is normally maintained in the oven?

(A) 110°C-130°C
(B) 120°C-150°C
(C) 120°C-260°C
(D) 150°C-220°C

Ans: (C) 120°C-260°C

Q3. Name some common types of oven.

Ans: Some common types of oven are given below:

- Fire wood oven
- Smokeless chula
- Charcoal sigri
- Kerosene stove

- Gas stove
- Cow dung gas or Gober gas
- Electric stove

Q4. **Give two examples of baking.**

Ans: Two examples of baking are:

(i) cakes and **(ii)** breads

Q5. **Name the three types of steaming.**

Ans: The three types of steaming are:

(i) Wet steaming **(ii)** Dry steaming & **(iii)** Waterless cooking.

Q6. **Who invented the Smokeless Chula? Describe the structure of it.**

Ans: Dr. S.P. Raju of the Engineer Research Laboratories Hyderabad invented the Smokeless Chula (Chulah).

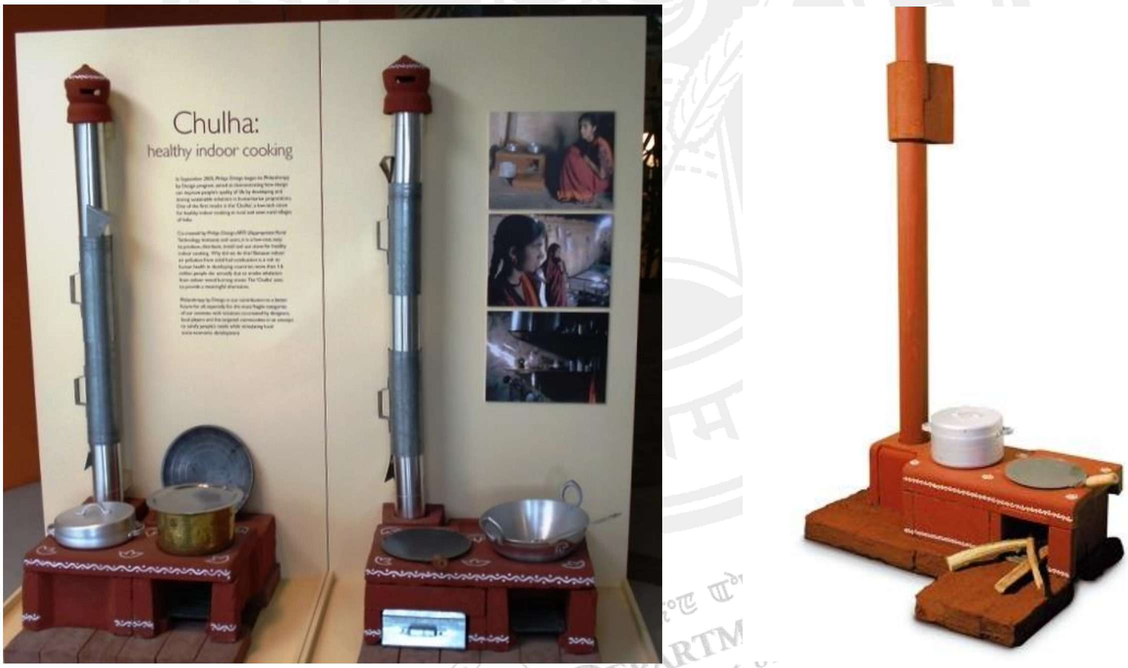


Fig. Diagramatic Representations of Chula (Chulha) having L-shaped & 3-holes

It is L-shaped and has three holes. Each hole is of 8 inches of diameter. The fire is lighted at one end and the smoke and heat is drawn through the chimney at the other end. If any of the three holes is not in use, it should be covered to prevent the smoke escaping into the room.

Q7. How does cooking improve digestibility?

Ans: Cooking improves digestibility by softening the connective tissue of meat and the coarse fibre of cereals, pulses and vegetables so that the digestive period is shortened and gastro-intestinal tract is less subjected to irritation. It improves the texture, hence it becomes more chewable and also increases the access to enzyme and improves digestibility.

Q8. State the benefits of Parboiled rice.

Ans: Parboiled rice is beneficial to the body because in parboiling some nutrients of rice from the pericarp, and germ or embryonic plant diffuse into the inner endosperm. When it is milled, even though it loses the germ and pericarp it will not lose all nutrients and it retains a considerable proportion of Vitamin B1, even when highly milled.

Q9. State the texture of baked food.

Ans: It is generally brown and crisp on the top, soft and porous in the center. Example- Cake.

Q10. What happens to fat/oil when heated to smoking point?

Ans: Fat/oil when heated to smoking point decomposes to fatty acids and glycerol followed by the decomposition of glycerol to acrolein, which causes irritation to the eyes and nose.

Q11. State the advantages of pan broiling or roasting.

Ans: The advantages of pan broiling are as follows:

- It improves the colour, flavour, and texture of the food.
- It reduces the moisture content of the food and improves the storing quality. e.g. rava
- It is easy to powder e.g., cumin seeds and coriander seeds, after roasting.
- It is one of the quick methods of cooking foods.

Q12. Differentiate between dry steaming and wet steaming.

Ans: **Dry Steaming:** Double boiler is used for cooking the food. The food is placed in a utensil which is kept in another bigger utensil containing water. When the water is boiled or heated, the food gets cooked. E.g. Milk custard. Whereas,

Wet Steaming: Steam is generated from vigorously boiling water or liquid in a pan so that the food is completely surrounded by steam and not in contact with the water or liquid around. e.g. *Idli* Cooker.

Q13. State the effects of cooking on the nutritive value of protein, carbohydrates and fats.

Ans: Protein: Application of heat to protein causes coagulation and shrinkage. Moderately cooked protein is more easily digested than raw protein. But excessive exposure to heat as in roasting will eventually reduce the nutritive value of proteins.

Carbohydrates: Cooking is essential for proper digestion of starch which is an important source of calories in the diet when heat is applied in any method of cooking, the starch granules swell up and burst. They become gelatinized in which state they are almost completely digested and absorbed.

Fats: Cooking under ordinary household conditions has very little effect on fat but there is some evidence to show that prolonged heat, fats become slightly toxic.

Q14. Draw diagrams of smokeless *chulah (Chula)*, gas stove and electric stove.

Ans: 1. SMOKELESS CHULA

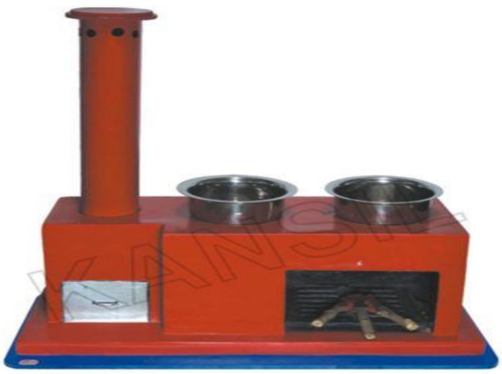


Fig. Diagrams showing Smokeless Chulas

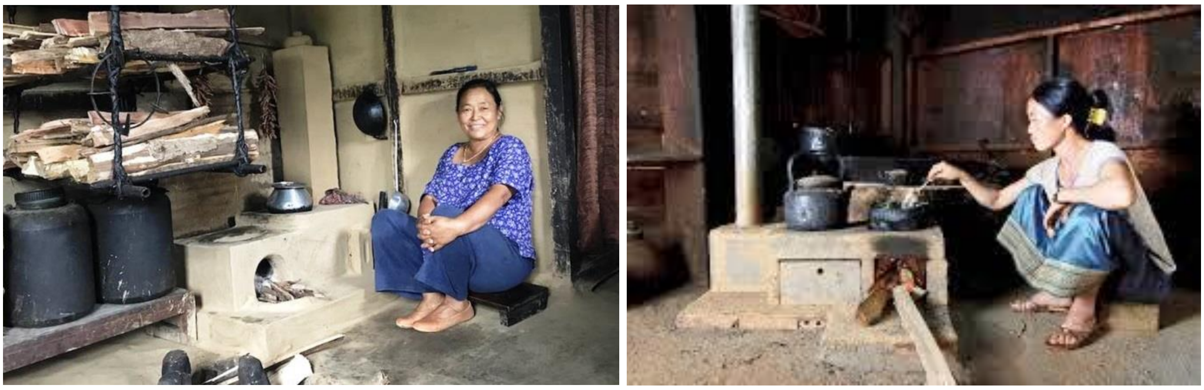


Fig. Diagrams showing women using Smokeless Chulhas

2. GAS STOVE

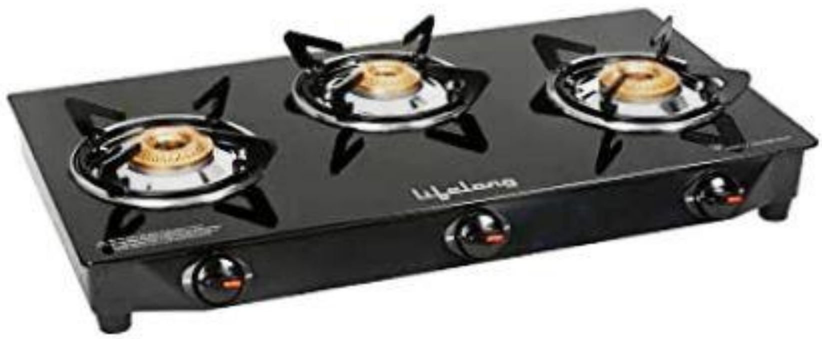


Fig. Diagram showing Gas Stove Burner

3. ELECTRIC STOVE

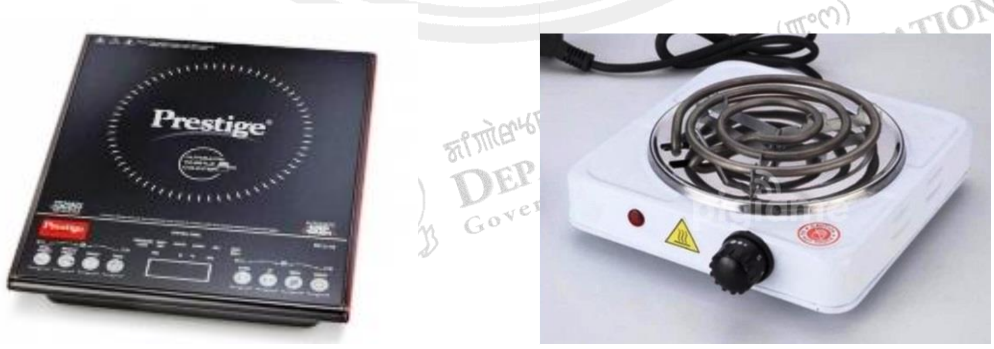


Fig. Diagrams showing Electric Induction Stove & Electric Hot Plate

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