

Home Science

Question Paper 2019

Maximum Marks: 70
Time allowed: Three hours

- Candidates are allowed additional 15 minutes for only reading the paper. They must NOT start writing during this time.
 - Answer Question 1 from Part I and five questions from Part II,
 - The intended marks for questions or parts of questions are given in brackets [].
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Part-I (20 Marks) **Answer all questions**

Question 1. [10 x 2]

- (i) Why has solar cooking become popular as a modern method of cooking ?
- (ii) What is meant by pounding ? Give one example of its usage.
- (iii) State two changes that occur in the nutritive value of food during germination.
- (iv) List any two effects that advertisements have on consumers.
- (v) Mention two ways of increasing life expectancy of the elderly.
- (vi) State one difference between bactericidal and bacteriostatic methods of food preservation.
- (vii) Define binge eating disorder.
- (viii) Name any two adulterants commonly found in spices.
- (ix) State the basic difference between the wet and dry methods of cleaning clothes.
- (x) State any two common safety measures adopted in the home that help to minimise the risk of electrocution.

Answer:

- (i) Solar cooking has become popular as a modern method of cooking due to rising crisis of non-renewable sources of fuel and energy. It is cost effective, natural, easily available, no maintenance and eco friendly method of cooking. It has also gained popularity because of growing awareness of environmental issues among the younger generations.
- (ii) Pounding is a technique of particle size reduction of foods usually done by forceful blowing in mortar and pestle. This helps releasing of juices and flavours from the food. It may also help in processing steps like dehulling.

Example: Husk removal of seeds and grains like rice; pounding of meat to release juices and flavors.

(iii) The two changes that take place in nutritive value of food during germination are:

- Germination increases the content of Ascorbic acid (Vitamin C) by 4 to 20 times and that of Riboflavin (Vitamin B2) by 2.5 to 4.5 times.
- There is also a significant reduction in anti-nutritional factors like phytates and trypsin inhibitors that hinder the digestion of proteins, making proteins easily digestible and available to the body.

(iv) Two effects of advertisements on consumers are:

- Advertisements make a long lasting impact on consumers' minds by connecting emotionally and making a memory of the advertisement.
- It develops a confidence among the consumers for the product, giving it recognition and acceptance in the market.

(v) Two ways to increase life expectancy among elderlies are:

- Healthcare by regular exercise, monitoring and controlling the prevalent conditions, taking multivitamin and antioxidant supplements and regular health check-ups can be helpful.
- Building a positive and happy environment around the elderly, increasing social interaction and- acceptance can help protect their social, mental and emotional well-being, leading to longer lifespan.

(vi) One difference between bactericidal and bacteriostatic methods of food preservation is Bactericidal method kills the bacterial cells and prevents any further growth whereas bacteriostatic method prevents the growth (multiplication) of existing bacterial cells.

(vii) "Binge eating disorder" is a serious eating disorder in which a person (usually overweight or obese) frequently craves and consume large amounts of food and lacks resistance and control over eating.

(viii) Two adulterants commonly found in spices are:

- Cassia in cinnamon.
- Dry tendrils of maize cob in saffron.
- Brick powder in chili powder.
- Argemon seeds in mustard seeds.

- Lead chromate in turmeric powder.

(ix) Basic difference between wet and dry methods of cleaning clothes are wet cleaning involves use of water and detergents or bleaches whereas dry cleaning involves non-aqueous chemical solvents.

(x) Safety measures that can be taken to make home safe from electrocution are :

- Keep all circuits grounded.
- Keep all electric appliances and panels away from wet areas and avoid using them with wet hands.

Part-II (50 Marks)
Answer any five questions.

Question 2.

Cooking is a means of processing food to make it fit for human consumption. In this context, discuss :

- (a) The advantages of using pressure cooker to cook food. [5]
(b) Merits and demerits of cooking food. [5]

Answer:

(a) Advantages of cooking food in pressure cooker are:

1. Most nutrients are retained in pressure . cooking.
2. Foods get optimally cooked. Example: Bengal gram requires pressure cooking to get completely cooked.
3. Taste and flavour are retained in pressure cooking.
4. It saves time and fuel making cooking process easy and quick.
5. It uses less water than conventional boiling method by using steam under pressure.
6. Multiple foods can be cooked at a time.
7. It makes the food sterile and safe by using steam under high pressure.

(b) Merits of cooking food are:

1. Cooking makes the food easily digestible by converting long chain molecules to short chain molecules.
2. It destroys the anti-nutritional factors that inhibit availability of nutrients.
3. It helps to release many nutrients from complexes, making them easily available upon digestion.

Demerits of cooking food are:

1. Cooking destroys heat sensitive nutrients. Example : Vitamin C.
2. Over cooking of food may lead to production of carbon products that are harmful to health.
3. If the water used for cooking is discarded, the water soluble nutrients and flavours are lost.

Question 3.

- (a) Briefly explain the importance of fats, when used during cooking of food. [5]
(b) State five precautions to be taken to minimize loss of nutrients during cooking. [5]

Answer:

(a) Importance of fats when used for cooking food are:

1. Fats are excellent medium of heat transfer.
2. It ensures that the food is evenly cooked on all sides, inside and out as it penetrates the food particles and coats it well all around.
3. Fats make vitamin A, D, E and K available to the body as they are fat soluble.
4. Fats also make non-nutrients like carotenoids and lycopene available to body that have health values.
5. Fats add to calorific value of the food, making the food more nourishing to the body.

(b) To minimize the loss of nutrients during cooking:

1. Do not discard the water used for boiling foods like vegetables, chicken, legumes and rice.
2. Reuse the water used for boiling foods to knead dough or in soups and curries.
3. Pressure cooking and steaming food retain more nutrients than conventional boiling method.
4. Microwave cooking also retains most of the nutrients than other methods of cooking.
5. Avoid overcooking of foods like toasting bread, chapatis for long time to retain the nutrients.
6. Cut the vegetables and fruits only at the time of cooking or consumption.
7. Prior cutting/chopping makes the water soluble nutrients evaporate with the moisture of foods, especially vitamin C.
8. Do not store cooked foods for long periods of time. If required, store in refrigerator in airtight containers.

Question 4.

(a) Discuss any five steps to ensure safety in the kitchen. [5]

(b) Define the term, quality. Give any four reasons for considering food to be of poor quality. [5]

Answer:

(a) Five steps to ensure kitchen safety are :

1. Keep LPG cylinders away from electric panels and make sure they do not leak.
2. Keep electric appliances away from wet areas like washing areas.
3. Keep all circuits and heavy appliances grounded.
4. Do not touch or use appliances with naked wire. Regular maintenance and immediate repair of gas stove and other electric appliances.
5. Keep fire extinguishers easily reachable and educate the workers/ family members for their use and other precautions in case of emergency.

(b) 'Quality' is optimum standard of food as compared to the legal standards as well as consumer acceptance.

Four reasons to consider a food of low quality are :

1. Infestation of foods like grains are considered substandard.
2. Off flavour or odour due to spoilage of food by microorganisms is considered as low quality food.
3. Uneven size and shape of foods like vegetables can be considered as low quality foods.
4. Tampered packaging, gnawed and broken foods may also be considered as low quality.
5. Presence of extraneous materials like hair/pins/stones/thread or others is considered as low food quality.
6. Adulterated foods are considered low quality foods.

Question 5.

(a) List five advantages of food preservation with suitable examples. [5]

(b) Discuss any five points to be kept in mind in order to retain the nutritive value of green vegetables. [5]

Answer:

(a) Five advantages of food preservation are :

1. Non-seasonal foods can also be available due to preservation of foods (Ex. pineapple candies).
2. Preservation of foods like fruits (Ex. mango .pineapple, amla) can add to nutritional value of foods.
3. It prevents loss of food materials when available in bulk (Ex. banana chips) and makes food available in drought or other reasons of unavailability (Ex. biscuits).

4. It makes cooking easier, faster and more convenient (Ex. Frozen peas/com)
5. It adds variety to the dishes. Ex. sauces, pickles, jams.

(b) Five ways to retain the nutritive value of green leafy vegetables are :

1. Do not chop the leaves before cooking time as they have lot of water soluble nutrients that are lost during storage.
2. Blanch the leaves and cooking them just to the optimum point prevents losses of heat labile nutrients.
3. Use the leaves when fresh as they tend to lose nutritional benefits along with storage.
4. Use variety of leaves to get optimum nutrition.
5. Cover the cooking pan with a lid to prevent losses with steam.
6. Use only the required amount of water for cooking.
7. Reuse the water to make soups or curries as the water contains lot of vitamins and minerals.
8. Do not serve leafy vegetables with milk and milk products and phytates in milk bind iron

Question 6.

(a) Explain any five non-nutritigal factors to be kept in mind while planning a meal for the family. [5]

(b) Discuss any five factors to be observed while preparing a special diet for a diabetic patient.

Answer:

(a) Five non-nutritional factors to be kept in mind before planning a meal for family are:

Glucosinates present in broccoli, cabbage, radishes and cauliflower prevent the uptake of iodine, causing health complications related to thyroid functions.

Protease inhibitors (Trypsin inhibitors) in soybeans inhibit the actions of trypsin, pepsin and other proteases, hindering complete digestion and absorption of proteins.

Lipase inhibitors found in some algae, soybean and wheat interfere with enzymes, such as human pancreatic lipase, that catalyze the hydrolysis of some lipids.

Phytic acid present in nuts and seeds has a binds to minerals like calcium and iron making them unavailable upon digestion.

Amylase inhibitors found in various beans prevent the action of enzymes that break the glycosidic bonds of starches and other carbohydrates, preventing the release of simple sugars and absorption by the body.

The foods containing inhibitors and their respective nutrients should not be consumed together in a meal.

(b) Five factors to remember while preparing a special diet for a diabetic patient are :

1. Avoid added sugars and sweet fruits like mango, banana and sapota.
2. Avoid foods containing trans fats and saturated fats. Include foods varieties rich in polyunsaturated fatty acids.
3. Replace processed, deep fried foods and bakery products in snacks with fresh cut salads, fruits (selected), nuts and puffed cereals.
4. Replace refined and polished cereals products with whole cereals.
5. Include variety of protein rich foods like paneer, eggs and boiled legumes.

Question 7.

(a) Explain any five causes of delinquency among adolescents. [5]

(b) Describe the role of parents in guiding adolescents. [5]

Answer:

(a) Five causes of delinquency among adolescents (juvenile crime) are :

1. Use of substances such as drugs and alcohol.
2. Wrong ways of parenting like harsh and abusive ways of punishment.
3. Incorrect selection of friends and peers, resulting in unwanted, irresistible reasons to commit crime.
4. Social labelling at young age can lead to personality changes and biases.
5. Economic and social complications leading to forced crime commitment.

(b) Role of parents in guiding adolescents are:

1. Parents should spare sufficient time to listen to and try to understand the adolescent's fears and concerns.
2. They should be positive in their approach and communication by giving friendly advice.
3. They should accept and respect the adolescent.
4. They need to be sensitive and responsive to siblings of different ages and genders, including adolescents.
5. They should give directions or suggestions in a positive way, so that the adolescents do not need to decipher information from wrong sources.

Question 8.

- (a) Explain the steps involved in the laundering of woollen garments. [5]
- (b) Discuss any five points to be kept in mind while storing expensive and delicate clothes. [5]

Answer:

(a) Steps involved in laundering woollen garments are:

1. Mix the required amounts of wool washing liquid in a bucket of cold water. Soak the woollen garment in this for 15 to 20 minutes.
2. Gently agitate and softly rub the garment with your hands to remove dirt, if any.
3. Rinse under cold water to remove soap.
4. Gently press the water out of the woollen, do not squeeze, wring or drip dry.
5. Do dry, lay them flat in natural shape on a towel spread on drying rack.

(b) Five points to be kept in mind while storing expensive and delicate garments are :

Make sure there is ample ventilation and sunlight in the room and the wardrobe where expensive and delicate garments are stored. Do not store them in a plastic bag, but use muslin or tissue bags to provide enough circulation and prevent odors and fungal growth.

Knitted, beaded and lacy garments require tissue paper between folds to prevent tangles with fabrics.

Plastic or wooden hangers retain the shape whereas wire hangers de-shapes the garment and it may stain the garment with rust in long run and moist air.

Do not store worn and clean clothes in a single shelf or drawer as it may attract pests.

Cedar oil or lavender oil sachets can be stored in the wardrobe as alternative to mothballs.

Question 9.

Write short notes on any two of the following :

- (a) Role of Agmark as a standardised mark. [5]
- (b) Stages of cognitive development during adolescence. [5]
- (c) Disposal of household wastes to maintain sanitation. [5]

Answer:

(a) Role of Agmark as a standardized mark :

Agmark was termed by “Ag” for agriculture and “mark” for certification. It gives certification to quality agriculture products through the Government of India by its agency Directorate of Marketing and Inspection (DMI).

Though it is voluntary certification, it is designed to benefit the local farmers throughout India to protect them from exploitation and raising their standards with certification.

Currently AGMARK covers guidelines for 222 different commodities spanning a variety of pulses, cereals, essential oils, vegetable oils, fruits and vegetables, as well as semi-processed foods.

It has testing laboratories across India where analysis of food samples are done for chemical and microbiological parameters, pesticide residues, adulterants.

It evaluates various food product ranges like spices, fats, oils, cereals and their products, legumes and their products, fruits, vegetables, honey, and animal source food products like meat.

(b) There are three stages of cognitive development during adolescence:
First stage is the Early adolescence. In this stage, thinking becomes more complex with reasoning and is focused on personal decision making in all aspects, like home, play and school.

Second stage is Middle adolescence in which complex thinking process as well as experience makes the adolescent more concerned about abstract issues like the philosophical and futuristic ones.

The third stage is the Late adolescence where complex thinking processes are focused on self centered concepts and decision making again, but with increased thoughts about global concepts like justice, history, politics, and patriotism.

(c) Disposal of House-waste to maintain sanitation are:
Reduce, Reuse and Recycle is the key to all kinds of waste disposal and is easiest to follow in households.

1. Reduce the use of plastic and paper products. Use cloth bags rather.
2. Reduce buying toys and materials that are made up of plastics or are packaged in plastic wrappers or containers.
3. Reuse those products that have to be discarded but can be reused in some way.
4. Reusing clothes can be done in many ways like making an art piece or reusing as a duster.

5. Recycling of waste materials can be done at home in many different ways or it can be given away to scrap collectors.
6. Unwanted items can be donated to the needy.
7. Vermi-composting can be done by using the wet waste produced at home instead of discarding it.