

**Home Science**  
**Question Paper 2018**

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**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) What is the difference between boiling and par-boiling ?
- (ii) List any two disadvantages of washing cereals and fruits.
- (iii) State two merits of microwave cooking.
- (iv) List any two points of importance of a care label of a garment.
- (v) Mention any two ill-effects of using pesticides on food.
- (vi) Name two common problems of puberty.
- (vii) List any two bactericidal methods of food preservation.
- (viii) Name two metal contaminants.
- (ix) Explain the term Ecomark.
- (x) What is meant by dry-cleaning of clothes ?

**Answer:**

<b>Boiling</b>	<b>Par-Boiling</b>
Boiling is the complete cooking of food using water. In this cooking method, the food is completely submerged in water for even heat distribution.	Par-boiling is half or 'partial-boiling' of food like rice and vegetables in water. Par-boiling is a pre-cooking method that makes the further processes like braising and grilling quicker and easier.

- (ii) The two disadvantages of washing cereals and fruits are:

- When cereals like rice or cut fruits are washed, vitamin-B complex also washes away from them.
- After washing, food should be consumed immediately in order to avoid food spoilage which arises due to excess moisture content. Washing can affect textures and taste of the food too.

(iii) Two merits of microwave cooking are :

- Microwave cooking is done very quickly as compared to conventional cooking.
- Microwave cooking allows cooking in very less oil and enhances the flavor of food.

(iv) Two points of importance of care labeling of a garment are :

- color fastness,
- washing instructions.

(v) Two ill-effects of using pesticides on food or crops are :

- decreased nitrogen fixation,
- reduced growth of plant

(vi) Two common problems of puberty are

- acne,
- mood swings..

(vii) Two bactericidal methods that preserve food are

- Deep freezing
- Canning.

(viii) Two metal contaminants are :

- Lead
- Arsenic.

(ix) 'Eco mark' is a label given to an environment friendly product by Bureau of Indian Standards (BIS). Products which meet certain environmental criteria and are ecologically safe are labelled and certified with 'Ecomark'.

(x) Dry cleaning of clothes means cleaning of a garment or textile with the use of Tetrachloroethylene (perc) or petroleum solvents instead of regular washing methods that involve water and detergent.

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

**Question 2.**

The science of food preparation is based on the understanding of the changes that occur in food during cooking. In this context, explain :

- (a) The effects of cooking on carbohydrates and protein. [5]
- (b) Five ways of enhancing nutritive value of food. [5]

**Answer:**

(a) Upon cooking, the complex structures of carbohydrates and proteins are broken into simpler structure. The starch in carbohydrates undergoes gelatinisation and the simpler sugars like glucose, undergo caramelisation or non-enzymatic browning reaction. The tertiary (complex) structure of proteins also breaks down. These changes make them tastier and easily digestible.

(b) The five methods which can be used to enhance the nutritive value of foods are :

1. Germination
2. Fermentation
3. Combining foods (Example : Cereals and Pulses for proteins)
4. Fortification
5. Enrichment

**Question 3.**

Preservation plays a very important role in avoiding food wastage. In this context, explain :

- (a) The role of enzymes and moisture in food spoilage. [5]
- (b) The use of salt as a natural preservative. [5]

**Answer:**

(a) Moisture allows the growth of microorganisms like bacteria and fungi. These microorganisms multiply in food and excrete waste products. This causes undesirable changes in food like bad-odour. Thus, foods with excess moisture deteriorate quickly. To prevent this spoilage, drying method is used things like papad, herbs, spices, cereals, etc. Enzymes are catalytic chemicals that help the fruits and vegetables to ripen. At room temperature, this process of ripening continues, causing food spoilage. To avoid this change, food like fruits and vegetables can be stored in refrigerator.

(b) The moisture content of food is usually responsible for its spoilage. The higher the moisture in food, the more are the chances of bacterial and fungal growth in it. Salt has a characteristic of absorbing water. When salt is added to food, it takes up the excess moisture content, making it unavailable for micro-organisms and thus, preventing their growth. In this manner, salt helps to prevent spoilage of food and acts as a preservative.

**Question 4.**

- (a) List the factors that cause diarrhoea.. [5]
- (b) Discuss the dietary treatment given to a diarrhoea patient. [5]

**Answer:**

(a) Some of the factors that cause diarrhoea are :  
Bacterial and Viral infections : They are the most common cause of diarrhoea, with mild-to-moderate symptoms like frequent and watery bowel movements, abdominal cramps and a low-grade fever.

Reaction to certain medications : Reactions can cause diarrhoea which includes the overuse of antibiotics.

Intolerance or allergies to foodjs : Foods such as artificial sweeteners and lactose (the sugar found in milk) can cause diarrhoea.

Consumption of unhygienic food : Consumption of unhygienic food results in the stomach and intestine infection, which is one of the most common causes of diarrhoea.

Malabsorption syndrome : It is a situation in which the small intestine is unable to absorb enough nutrients can cause diarrhoea.

(b) For a patient with diarrhoea, soft, completely cooked and balanced diet is recommended. Food with excess fibres, nuts, spices and fats should be avoided. Lot of fluids, oral rehydration formula and water should be given. As the patient's digestive system is disturbed, instead of giving large meals, small- frequents meals should be given. Soups, fruit juices, curd, buttermilk, lemonade, rice, etc. are easily digestible and can be given frequently. Freshly prepared homemade meals are best for the patients who are suffering from diarrhoea.

**Question 5.**

- (a) List five health related problems resulting from toxic colouring in food. [5]
- (b) Suggest five measures to prevent suffocation and choking in kids. [5]

**Answer:**

(a) Toxic dyes in food can cause health problems like:

1. Nausea, vomiting and stomach discomfort
2. Low blood pressure
3. Difficulty in breathing, swelling and rashes on skin
4. Kidney disorders
5. Cancer

(b) To prevent suffocation and choking in kids, following measures should be taken :

1. Small objects, electric cords, magnets, small toys like dice, jewellery, plastic bags and other similar items should be kept out of reach of kids.
2. The mattress and sheets in the crib should be tightly secured to avoid suffocation as they might roll over at night.
3. Keep stuffed and soft toys away from the child, once he/she is asleep.
4. Food should be cut in to small pieces. Foods that are consumed whole like popcorn, grapes, berries, etc. should be given only under the supervision of elders.
5. Drinking water should be given only in sipper bottles, until the age of 5 years.

**Question 6.**

(a) List any five advantages of packaged goods in comparison to loose commodities sold in the market. [5]

(b) Discuss any five responsibilities of a consumer. [51]

**Answer:**

(a) The five advantages of packaged goods over loose commodities are:

The packaging keeps the product clean and adulteration is almost impossible in packaged goods. On the other hand, loose sold products can easily get contaminated and adulterated.

Consumer can know the maximum retail price mentioned on label and the seller cannot change the cost of commodity to cheat the consumer.

The weight of packaged goods remains intact and the seller cannot cheat the consumer by giving lesser quantity.

The labels on package contain important information like 'expiry date', 'how to use', and other instructions for safety of the consumer. This is unavailable in loosely sold commodities.

Packaging prevents the goods from damage during transport and storage.

(b) Five basic responsibilities of a consumer or pilferage:

Use the product as instructed. For this, one has to read the instructions given in the manual or on the label carefully. Carelessness or ignorance can be dangerous to consumers, for which the manufacturer/seller is not responsible.

The proof of purchase and cash memo or invoice should be safely retained to make a claim on the seller/manufacturer.

The claim can be made only for the product and service in warranty or guarantee period. Unreasonable claims should be avoided by the consumer.

The bank account details should be kept confidential by all consumers.

Any unauthorized transactions should be immediately reported to the bank and police.

**Question 7.**

(a) List any five factors that influence the adolescents while choosing their career. [5]

(b) Explain the role played by schools in the social and emotional development of teenagers. [5]

**Answer 7.**

(a) The five factors that influence adolescents' career choice are:

1. Personal factors : Interest, talent and marks scored.
2. Peer group and social factors : Career selected by friends and other young people.
3. Family and social influence : Role of parents, teachers and society, their encouragement to the child for a specific career choice.
4. Economic factors: Affordability of a specific educational facility.
5. Availability of a specific educational choice : Available of course in the suitable place or availability of migration to the required place for study of the desired career/course.

(b) As teenagers spend a lot of time of their day in school and are going through a period of changes, school plays an important role in their- social and emotional development. Peer groups, friends and teachers affect a teenager's mindset, mood and attitude. Bullying friends and harsh teachers that embarrass or humiliate the teenager can give a negative push to his/her sensitive emotional state. Whereas, a positive and energetic surrounding in school can boost a teenager to a healthy emotional and social development. The basic social interactions are unavoidable at schools and the teenager learns to take initiative and make friends.

**Question 8.**

- (a) Discuss the technique of storing a velvet garment at home. [5]  
(b) How does the climate and occupation of individuals affect the choice of clothes ? [5]

**Answer:**

(a) Following points should be used while storing a velvet garment at home:

1. Velvet clothes should always be hung, not folded as folding leaves creases that are difficult to remove. .
2. To protect velvet garments from dust, cover the shoulders with cotton fabric.
3. To store them for a long period, always use a porous, washable fabric storage bag.
4. Do not use plastic as it can trap moisture which can damage fibers and promote growth of fungus in the damp areas.
5. Store velvet garments in a cool, dry area that has stable temperature.

(b) There are many factors that affect the selection of clothes, climate and occupation are two of them. Climate usually affects the choice for the requirement of comfort, convenience and to protect the body from harsh weather. For example, in summers, cool, soft and light- colored clothes having sweat absorbing qualities are preferred whereas silk or heavy clothes are :

In winters, warm and woolen clothes which maintain warmth in the body are used.

In rainy season, moisture content increase in the weather, therefore, clothes made of nylon are preferred as they dry easily. On the other hand, occupation affects the choice of clothes with regards to comfort as well as suitability. For example, an air hostess and a nurse, both have the uniforms that are suitable for easy and quick movements. However, the material, color and overall appearance of both are largely different to suit their professions. Likewise, each occupation has a particular requirement for dressing that gives them a formal look.

**Question 9.**

Write short notes on any two of the following :

- (a) Storage of eggs. [5]  
(b) Preliminary treatment of food. [5]  
(c) Use of Biogas. [5]

**Answer:**

(a) Eggs should be stored in their original carton in the refrigerator. This helps to reduce water loss and protect flavours from other foods from being absorbed into the eggs. Upon refrigeration, eggs last for 3-5 weeks. Freezing eggs, shell eggs and egg-products can be stored in the freezer for upto one year. However, sufficient care should be taken in defrosting the frozen egg and its products. Only required quantities should be

defrosted • and the container should be placed in cold water to defrost. Refreezing of defrosted products should be avoided. Also, once thawed, the egg should be stored in refrigerator if not used immediately and shell be used within three days of defrosting.

(b) Preliminary treatment of food means the pre-processing steps involved in cooking process. These can be preparing or processing method that makes the further processing easier, quicker and simpler. It is also important for making the food product safe to eat. Some of the treatments are washing, peeling, chopping, cutting, grinding, etc. Cleaning methods make the food clean and safe for consumption. They help to get rid of dirt and pesticides that linger on the food surface. Chopping or grinding food reduces the time taken to cook in the further processes. Some other methods are soaking, germination and fermentation. These methods make the food more nutritious than its native form. Methods like soaking destroy the anti nutritional components in the food product, making it easier to digest. They also help to quicken the process of cooking rich flavored dishes.

(c) Biogas is an alternative source of fuel and manure. It is natural and safe for the environment, as well as human health. Following are some uses of biogas :  
Use of biogas as a natural fertilizer : The slurry in the biogas is a very rich source of nutrients. It increases the crop yield to a considerable extent as compared to other fertilizers.

Use of biogas as a cooking fuel: Biogas can help to bring up a smoke-free and ash-free kitchen in rural areas. Chores of cutting wood can be avoided.

Use in electricity production : It is used in producing electricity. During this process, heat is also generated which can be used in water heating or other industrial processes that require heat.

As a fuel : Upon purification to bio methane, it can be used as a fuel for vehicles.

As a fertilizer : When biogas is broken down, it releases  $\text{CO}_2$  which is a good fertilizer. It is also a raw-material for production of dry ice.