

Handling = treatment, touch تَعْلِيمُ الْأَيْدِي

Spoilage = Decay of food مِسَادِعَةٍ

vector = mean of disease transfer خَاقَن

wholesomeness = Healthiness سَالمُونِدُونِ مِنَ الْأَذَاجِ

vulnerability = susceptibility اُنْسِيْسِ يَنْبُوْرِي

Concern = worry كَوْنَرْي

to preserve = to keep safe, to conserve حِفْظُ الْأَيْمَانِ

Brine = water which is full of salt محلول آتِينَتْ فِيَهُ الْمُلْحُ

to evolve = to be developed إِلَيْعَالِي

to hasten = to accelerate

Glut = full amount بَلَادِيَانِيَّةٌ

Inter Pretation = Explanation تَفْسِيْر

Quasi = to some degree نَفْسِي

outstanding = excellent إِلَيْعَالِي

to destroy = to demolish

exposure = Location مَكْانِي

Aseptic = uninfected, uncontaminated مُنْجَنِي

sophisticated = complex بَيْضَدِيَهُ دِبْلِيُورِي

hasten \rightarrow سرکشیدن

fasten, listen
 \rightarrow جذب کردن

require = میتواند / میتواند

facts = واقعیت Unit 1

Section One:
Reading Comprehension

fixed \rightarrow ثابت

Food Science and Its Historical Development

reports \rightarrow اخبار
able \rightarrow قابل
soviet \rightarrow شوروی
either \rightarrow هر دویار
newly \rightarrow اخیراً

The scientific study of food is one of man's most important endeavors, mainly because food is his most important need. It is necessary for his survival, his growth, his physical ability, and his good health. Food processing and handling is the largest of all of man's industries. Many factors require that those scientists who choose to study foods be prepared to absorb as much of the physical and life sciences and as much engineering as possible. Among these are the chemical complexity of foods, their vulnerability to spoilage, their role as a disease vector, and the varied sources of foods. The availability, nutritional adequacy, and wholesomeness of foods are also quite varied.

Whether we know enough of the facts to trace the development of food science from the beginning is questionable. History reports that the Romans realized, more than the Greeks, Egyptians, or any of the prior civilizations, that agriculture was a prime concern of government. The Romans, as the Egyptians and the Greeks before them, were able to preserve a variety of foods by holding them in vinegar (with or without brine), in honey, or in pitch. Some foods were also dried either by the sun or over a fire.

It is generally believed that until the later part of the 18th century the preservation of foods had evolved as an art handed down from generation to generation. Its development was slow, depending on accidental discovery, observation, trial and error, and attempts to reproduce and put into practice the newly found techniques. Drying, freezing, smoking, fermenting, cooking, and baking had been practiced for centuries—even by illiterates. Foods frozen accidentally in cold climates and foods dried accidentally in dry climates were observed to have a longer shelf life than foods which were neither frozen nor dried. Foods that might have been put over a fire to hasten drying could easily have led to the smoking process. Thus, chance occurrences led to preservation methods that permitted man to conserve foods during times of glut so that he might survive the leaner spells. It can be said, then, that those who made the

preservative
او، و

methods

PRESERVE: *ثبات، حفظ*

observations and realized their impact and put their interpretations to the test, until the new practice was proven, were the first food scientists.

Spallanzani and Appert were among the first to apply the quasi-scientific methods for preserving foods, and in 1809 Appert won a prize from the French Government for developing a thermal processing technique for foods to be used by the military. Appert is credited with developing the canning process. Because of the scarcity of scientific information, Appert had to employ trial and error tactics, but his records attest to the accuracy of his observations and conclusions and show that he applied the scientific approach to gain his outstanding achievement, even though he did not know why his method worked.

It was not until the discoveries of Pasteur in 1850 and the work of other microbiologists such as Prescott and Underwood in 1895 that man learned that bacteria spoiled food and why thermal processing prevented food spoilage. In 1898, it was noted that bacteria were destroyed by exposure to radioactive salts of radium and uranium. By 1930, the use of ionizing radiations to preserve food was patented by O. Wust.

Modern technology has made possible the controlled, automated drying processes and sophisticated modifications such as freeze-drying, drum-drying, spray-drying, fluidized-bed drying, etc. Controlled, automated versions of thermal and refrigeration processes have also been developed. Radiation processing (by electron-, X-, and gamma-rays), microwave processing, and aseptic canning have also been introduced.

Part I. Comprehension Exercises ** modify - change*

A. Put "T" for true and "F" for false statements. Justify your answers.

- T 1. Physical science, life science, and engineering are important fields of study for food scientists.
- F 2. Chemical complexity of food is a factor for the spoilage of food.
- T 3. Foods are different in their availability, nutritional adequacy, and wholesomeness.
- F 4. Food scientists are able to tract the development of food science.
- F 5. Greeks could preserve foods for a long time because they held them in vinegar.
- T 6. Accidental occurrences had important role in the conservation of food.
- F 7. Prior civilization realized more than Romans that agriculture was a primary concern of government.

2 By 1915 + later than.

Historical operators destruction
exposure to oxygen

modern = Emerging = Novel = Innovative
مودرن = نوئر = نووٹیو = انووٹیو

8. Preservation of food as an art evolved from the later part of the 18th century.
9. Scientific approach used by Appert brought him success.
10. Exposure to radio-active salts of radium and uranium prevents food spoilage.

B. Choose a, b, c, or d which best completes each item.

1. Food is the largest of all of man's industries.
a. survival بقا c. process فرآیند
b. endeavors جهاد d. factor عامل
2. Later part of the 18th century is important because of foods had evolved as an art.
a. the drying دسک سائی c. the freezing انجماد
b. the preservation حفاظت d. the processing تولید
3. Trial and error were among other elements which the development of food preservation.
a. helped کمک کیا c. prevented ممانعت کیا
b. slowed down کم کر کر کیا d. reproduced دوبارہ کر کر کیا
4. Putting foods over a fire to hasten drying will lead to
a. the drying process دسک کیا گیا c. the fermenting process فراؤنڈ کیا گیا
b. the smoking process چکنے کیا گیا d. the cooking process آپر کیا گیا
5. Conserving foods during times of glut helped man in times of food shortage.
a. to live زندگی کیا c. to preserve food حفاظت کیا
b. to conserve food حفاظت کیا d. to practice کارکردگی کیا
6. Spallanzani and Appert were one of the first who tried
a. to win a prize from the French Government فرانسیسی حکومت سے جایزہ کیا
b. to develop a thermal processing technique for food اونٹ فرماں
c. to apply the scientific methods for preserving foods اسے کیا
d. to employ trial and error tactics for food preservation بے انتہا تجربہ کیا

C. Answer the following questions orally.

1. Why is scientific study of food important? Food is man's most important
2. What is the history of the development of food science?
3. What is generally believed about the preservation of foods?
4. What does history report about food preservation?
5. What did the first food scientists do?

Sun drying

spray drying

freeze drying

smoking

Fluidized-bed drying

drum drying

driving

Freeze drying

smoking

soybean

soybean flour

Scanned with CamScanner

۱) هندا م پیشگیران عذایا دست چاپ بارهایان یعنی هر جا صادر چنین چهای پول تاں رائیت باشد
۲) هم در تداشی است سائل سلادزی یا قائم پیشگیری آن حل نه.
۳) چنین زیاهان نسبت به خود اتفاق هف فریبیده دیگری نیز بر است.
۴) چنین زیاهان داری میزدند که از آن که بیشتر فیضان باشند دویں سا

Part II. Language Practice

A. Choose a, b, c, or d which best completes each item.

1. When foods, hands should not touch mouth, nose, or other parts of the body.

a. processing فرآورش

b. handling میوه های

c. canning سسروولان

d. observing مشاهده

2. Some roots water more than others.

a. absorb جذب کردن

b. conserve حفظ کردن

c. report نظری

d. reject رفع

3. Science is trying to solve farming problems with all its

a. adequacy داشتن

b. glut صفت بولن

c. wholesomeness خواص

d. complexity سختگی

4. Some plants are to strong sunlight.

a. vulnerable مبتذل

b. asceptic منافعی

c. vector مارک

d. preserved حفاظت

5. The of butter may be more than a few years.

a. thermal processing حرارتی

b. reproduction تولید

c. smoking دودی

d. shelf life دوره زمانی

6. Mechanizing farming activities is of our government.

a. the primary concern اولیه

b. the processing technique فرآوری

c. the thermal processing حرارتی

d. the canning process فرآوری

7. In operation, the container should be tightly sealed.

a. the scientific علمی

b. the spray-drying اسپری

c. the drum-drying درum

d. the canning فرآوری

B. Fill in the blanks with the appropriate form of the words given.

1. Spoil

- a. Food science tries to reduce the amount of food spoilage

ب) مقدار بیرون

- b. Apple slices are easily in normal temperature.

c. Heavy flood is responsible for the of many crops in our

country.

2. Observe

- a. Modern science basically depends on and experiment.

b. Food scientists carefully the microorganisms that can spoil

food.

3. Radioactive

- a. People believe that dust carried by the wind can be harmful to

their lives.

ج) از این

Radioactive

Civ

بعض ایام معرفت اسلامیہ

Radioactivity

- b. We know that the of some metals like radium and uranium was unknown to man years ago.

4. Evolve

evolved

- a. Scientists have new theories related to the structure of atom.
- b. There has been considerable change in the theory of proposed by early scientists.
- c. It is really difficult to understand and accept new ideas!

5. Ionize

ionization

- a. Some elements are found in the form of neutral in nature.
- b. Some foods may be preserved by radiation.
- c. In a salt solution, atoms of hydrogen will combine with each other through process.
- d. Electricity will the component elements of the solution.

6. Automate

automated

- a. Food preservation is now a relatively industry.
- b. It is quite clear that the high efficiency gained in food industry is at the result of the of food handling machinery.
- c. For the wholesomeness of food, scientists are eager to handle it by machines.

C. Fill in the blanks with the following words.

industry () natural () brine () preserve ()
 technological () storage () freeze () invention ()

By 1875, man had learned to foods by artificial refrigeration using first ice, and later manufactured ice, to preserve fish and meats. He also learned that could be made colder than 0°C, and this enabled him to foods. By 1890, mechanical refrigeration came into wide use, opening the way to the frozen of foods. Quick freezing was first used in 1924 to preserve fish. One of the most important ensuring developments was the of the fish blocks by Birdseye technologists. This is considered by many to have revolutionized the fish processing ()

D. Put the following sentences in the right order to form a paragraph. Write the corresponding letters in the boxes provided.

- a. But this is understandable since we take for granted the presence of adequate amounts of oxygen in the air.

ما تنفس می کنیم و همین از منابع غذاهای ما است → اسرار خواهی داد، زبان

- b. It is universally accepted that man's basic needs are food, clothing, and shelter.
- c. We breathe and we are ever aware of the copious supplies of water in the many rivers and lakes.
- d. Of course, such a listing ignores man's need for oxygen and water, two critical requirements.

1 2 3 4

b	d	a	c
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۶) نیاز روحی دو بر قدر نشده است که می تواند بکشید.

۷) نیاز دارد که است جیو ماعلم فی رائیم همان را بخواهد.

Section Two: Further Reading

این بخش تقدیم اعذاما

Nutritional Quality of the Foods

مطلب معرفت عکس ذهنی

The optimum physical and mental functioning of the body is dependent on the nutritional quality of the foods it receives. Man has observed this from the beginning of time, and certain diets have evolved as a result of these observations. The analysis and planning of diets were not possible until food science became established to a degree and produced the basic information that made these activities possible. From the knowledge acquired through the development of food science emerged conclusions that resulted in the classification of foods into nutritional groups representatives of which are considered to be necessary in all diets to ensure the intake of a recommended minimum of protein, carbohydrates, vitamins, minerals, etc. Evidence of the links between diets and certain symptoms of ill health became easier to obtain as food science developed, and the potential of specific diets in corrective and preventative medicine has been since recognized, and is effectively practiced. With all its importance, food can be harmful if it is contaminated in some ways. Food poisoning and diseases caused by unwholesome foods are not rare in every society. The factors that contribute to food-borne diseases are related to ignorance of proper food-handling procedures or to the unwillingness of food handlers to comply with the guidelines for handling foods sanitarily. It is unfortunate that we are unable to reduce the large numbers of food poisonings that occur each year, as there is no insurmountable reason why it

could not be done. معرفت بردن تجربه کردن مرسوم نظرات بردن

Meals that are consumed following their preparation are not likely to be responsible for food poisoning. On the other hand, meals that are consumed hours after preparation, such as is customary at picnics and outings, should be supervised by knowledgeable people. This is especially true with salads containing eggs, chicken, or turkey or products made from them. Prepared foods that are not to be used for long periods should be immediately refrigerated and reheated, if necessary, just prior to use. Some products such as puddings, custards, and éclairs should be held under refrigeration at all times. Home freezers are not of sufficient capacity to flash-freeze stuffed chickens and especially stuffed turkeys, and, therefore, poultry should not be stuffed prior to freezing. Instead they should be stuffed prior to cooking. Leftovers should be used as soon as possible; this is especially true of salads, chicken, and other perishables. If, due to odor or other indicator, there is any doubt about the safety of a food, it is best to discard it unless advice can be obtained from a food scientist.

From what we know about bacteria that are involved in food-borne diseases, we can control their growth by controlling the temperature of the foods. Thus, foods held at temperatures below 38°F or above 145°F will not undergo a buildup of pathogens. Just as important, we can keep the contamination levels of pathogens quite low by following sanitary guidelines in the handling of foods. To do this effectively, sanitary procedures must be practiced in all phases of food handling up to the moment it is consumed, and two prime needs in any sanitation program are (1) the appointment of a person to take the responsibility for the program and (2) the institution of measures to ensure the continuation of the program. Also it must be remembered that sanitary handling practices are of no meaningful use unless the food itself is safe and unadulterated when it is procured.

It is often said that good sanitation is good economics. Actually good sanitation is an additional cost of production. However, the good economics are evident in the long run through customer satisfaction, continuing sales, minimized losses from spoilage, and minimized probability of damaging law suits that could arise from food poisonings.

Comprehension Exercises

A. Put "T" for true and "F" for false statements. Justify your answers.

- T..... 1. Physical and mental functioning of body is dependent on the quantity of food.

- پرسنلی برخوردی کیا ہے**
- T** 2. Analysis and planning of diets became possible because of the establishment of food science.
 - F** 3. For the analysis and planning of diets, basic information is needed.
 - F** 4. Classification of foods into nutritional groups has nothing to do with the development of food science.
 - F** 5. Proper food handling procedures lead to food-borne diseases.
 - T** 6. Controlling the growth of bacteria is related to the temperature of food.
 - F** 7. Since good sanitation means an additional cost of production, we should spend less money for sanitation purposes.

کھانے کی امور

B. Write the answers to the following questions.

1. When was the analysis and planning of diets possible?
2. What are the factors that contribute to food-borne diseases?
3. How can we control the growth of bacteria?
4. What are the two important needs in any sanitation program?
5. Why can food be harmful?



Section Three: Translation Activities

A. Translate the following passage into Persian.

Food Components

میانت **لهمہ و ملہ** The availability of an abundant supply of food does not necessarily guarantee survival unless the food is nutritionally complete and contains no harmful substances. Unfortunately, serious and sometimes fatal illnesses result from diets that lack sufficient proteins, vitamins, or other nutritional components. Serious adverse consequences may also result from the consumption of foods containing such harmful substances as infectious microbes, microbial toxins, viable parasites, etc. Thus throughout man's evolution he has had to concentrate on many factors affecting foods.

B. Find the Persian equivalents of the following terms and expressions and write them in the spaces provided.

1. aseptic canning

Canned fruits.....

2. automated
3. brine
4. custards
5. drum-drying
6. eclairs
7. evolve
8. fermenting
9. flash-freeze
10. fluidized-bed drying
11. freeze-drying
12. ionizing
13. microbiologist
14. microwave processing
15. observation
16. pathogens
17. preserve
18. pudding
19. radioactive
20. radium
21. shelf life
22. spoilage
23. spray-drying
24. symptoms
25. thermal
26. unadulterated
27. uranium
28. vector
29. vinegar

..... حَوْدَرْ كَلَّا
 أَبْرَقْتَنْ
 هَرْسِنْ
 حَمْسَرْ لَكْلَنْ اِنْسَنْ
 سَهْرِنْ هَنْجَانْ
 خَلْلَهْ لَهْسَرْ
 هَلْهَهْ
 إِنْجَهْ
 لَهْلَهْ لَهْلَهْ
 حَمْمَهْ صَلْهَهْ مَهْمَهْ
 صَرْهَهْ بَهْرَهْ
 جَهْهَهْ
 بَهْيَهْ بَهْيَهْ
 حَاهْفَهْ كَهْلَهْ
 دَهْهَهْ
 كَهْلَهْ كَهْلَهْ
 طَهْهَهْ
 كَهْهَهْ بَهْهَهْ
 جَهْهَهْ
 حَاهْهَهْ كَاهْهَهْ
 سَهْهَهْ
 حَاهْهَهْ
 كَاهْهَهْ
 أَهْهَهْ
 جَاهْهَهْ
 سَاهْهَهْ

جَمِيعَ