

Q1: A) Food Adulteration: Food Adulteration is a process in which the various substances are added into food in order to increase its quantity.

eg- water is added to milk by milkman to increase its quantity and then sold accordingly for more gains.

It decreases the nutritional quality & quantity of food items and in some cases can cause the malnourishment.

Food Contamination: Food Contamination is the spoiling, degrading, or unwanted chemical change in food content due to microbes, insects or addition of unwanted substances into food.

e.g- spoiling of cooked meal
decomposition of fruits
presence of pesticide residue in vegetables

Ways to control Food Adulteration:

Food Adulteration has been a major issue in Third world countries, arising from greed of money & economic gains. We can control it through:

- - Strict laws to prevent and punish those involved in or responsible for it.
- - Regular inspection of Dairy farms, milkman & supply man. and production facilities.
- - Research to produce more ~~in~~ productive crops and livestock in order to compensate the unethical means of gains.
- - Efficient production facilities and machinery.
- - Accountability of supervisory institutes.

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B)- Methods of Food Preservation:

These are various industrial and domesticated methods of food preservation as following:

•- **Pickling**: Food content is immersed in very concentrated solution in order to create anaerobic condition and hence various microbes are unable to carry out any process.

e.g.: Homemade Pickle or achar is usually made with same process in South Asia.

Brine, oil or other such solutions can be used.

•- **Drying**: Usually the moisture content of the food is dried out through heating in controlled environment and some time in sunlight as well. This can increase shelf life of food as various

enzymes require an aqueous medium for functioning.

e.g. - Various fruits are dried out and sold as snacks like mangoes, kiwis etc.

•- **Salting:** Salting is another method of drying but it involves the use of salt that draws out water from food content and increases its shelf life.

e.g. - Nomadic tribes use this technique to store meat

•- **Canning:** Food is stored in air-tight containers in order to stop any kind of microbe or spore from entering.

Vacuum-tight packaging is its new form.

•- Freezing: Food is stored at temperature usually lower than 4°C as all kind of cellular, even in microorganism, activities stop at this temperature.

e.g- Frozen food especially sea food is transported by this method. Refrigerators also work on the same technique.

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D) - Earthquake :

Earthquake is the shaking of Earth's surface caused by sudden release of energy in the Earth's crust.

The tectonic plates moves at the fault lines, creating stress. When this stress exceed the rock strength, it causes them to either break or shift suddenly.

And hence, the result is the sudden dissipation of that energy stored in form of stress, which causes the ground above it to shake and we experience Earthquake.

The point of release of this energy is called **focus** within the Earth.

The surface point above focus is called as **epicenter**.

These that energy flows through Earth surface in form of the **Seismic waves** causing trembling sensation in ground.

Earthquakes can vary in their magnitudes and are measured by using **Richter scale**.

C) - Temperature: The measure of warmth and coldness of air that indicate weather is called as temperature.

It is determined by the flow of heat in air and is directly affected by seasons. In summer, the sunlight receives relatively direct rays, warming up the atmosphere and ground, vice versa in winter.

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Earth position determine these seasonal variations of temperature throughout the globe.

It is measured by thermometer.

Pressure: The force exerted by air at some point is called pressure.

It is measured by barometer and in the unit Pascal.

Difference in pressure causes the flow of wind, clouds movement and determine rainfall patterns.

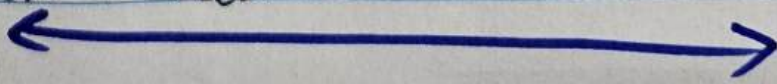
Air tends to move from higher to lower pressure and same phenomenon is done with the air currents.

Pressure is directly affected by temperature.

Humidity: The amount of water vapours in air are the humidity measure of that air.

It determines the precipitation level in a particular area. Areas with higher humidity usually receive higher rainfall like tropical forests.

All these factors determine the weather of an area that is reflected in its weather.



Q 3). A) - Vaccines: Vaccines are a mean to protect individuals from diseases by developing immunity in their body before hand.

This is done by injecting weakened pathogens of that disease in any healthy individual so that it's body can produce antibodies for that particular pathogen. Then, the pathogen is unable to bypass body's already developed immunity through and hence prevention is achieved.

It was first developed by Edward Jenner in 1776 when he made a vaccine for small pox using the lesion material of cow pox on a kid who then developed immunity.

Covid-19 vaccines have been quite a recent breakthrough and so were the vaccines of AIDS, Polio, Measles and various other

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harmful diseases that have disturbed humanity for centuries.

Pastuer was also another notable name as he developed vaccine for Rabies and anthrax in 19th century.

B)- Balanced Diet: Balanced Diet is a diet which contains the right proportion of essential nutrients in it.

Various nutrients whether micro or macro-nutrients are needed by the body for essential body functions like minerals are used for various functional purposes and reactions, meanwhile proteins are a source of energy and also building block of important body constituents like Haemoglobin in blood. Similarly, vitamins, lipids and carbohydrates are also needed.

Hence, in order to sustain human body and keep it nourished a balanced diet should contain all the needed nutrients in the right proportion, that can then help in normal growth, functioning and healing of body.

Merits:

- A balanced diet is the guarantee of a healthy life.
- Deficiency of various nutrients can lead to diseases and so does excess. Hence, a balanced diet helps maintaining healthy and disease-free life style.
- A balanced diet helps to feel energetic and productive.
- A balanced diet keeps the immune system well-maintained.

and hence free from various diseases.

- A balanced diet is crucial for proper physical and mental growth of children.

C)- DRM weaknesses in Pakistan:

Disaster Risk management in Pakistan has following weaknesses -

- Lack of resources and finances to maintain these resources. As an economically strained country Pakistan does not afford the modern machinery, used elsewhere to cope disasters and to maintain these.

- Lack of human capital in Pakistan is another issue. Trained Professionals to operate

modern machinery used in DRM, planning, execution or evaluating are all in shostage in Pakistan. This is due to the lack of technical education.

- - Lack of relevant education and training. For years, there were no major institutions or university that ~~proda~~ provided education & related to disaster management. Most of the hired professionals had degree from foreign institutes that produced region specific professionals only.

- - Lack of political and administrative will to modify or advance the DRM in Pakistan.

- - lack of reposting mechanism, that is an important phase of DRM.

- - Lack of infrastructure in various remote areas is another issue that slows down the process of DRM especially in Northern areas.

D) - Carbohydrates: Carbohydrates are chemical compounds that have Carbon, Hydrogen and Oxygen as its basic constituents.

Carbohydrates are of varying sizes and some can't be broken down into simple units. These monosaccharides join together to form bigger & complex carbohydrate compounds.

Types: Based on the sizes, there are three types:

- - Monosaccharides (e.g. - glucose)
- - Oligosaccharides (e.g. - maltose)
- - Polysaccharides (e.g. - starch)

Sources: Carbohydrates come from organic or living sources and almost all except a few are formed as a result of photosynthesis in plants and the processes to follow.

Corn, wheat, milk (lactose), fruits, barley, sorghum, & various vegetables are good sources of carbohydrates.

Cotton is pure cellulose (polysaccharide). & sugarcane is rich in starch (another polysaccharide).

Role:

- - Various monosaccharides are part of essential chemical reactions in living organisms and provide energy for cellular processes like glucose, fructose etc.
- - Oligosaccharides have varying functions. These are mostly involved in the transportation of

energy. e.g- lactose in milk is also made of glucose but it is only broken down at cellular level to prevent degradation.

- Polysaccharides mostly play structural role as cellulose, lectin, pectin, hemicellulose, lignin etc. that are important constituent of plant cell structure and in various microorganisms as well.

Defici Dietary Problems:

Excess of carbohydrates in diet can lead to obesity and liver damage, that can be fatal.

Deficiency of carbohydrates can lead to weakness, dizziness, stunted growth and various functional disorders.



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