

# General Science and Ability

## Test - 1

Q #1

A- Define vaccine and antibiotics.  
Give differences b/w them.

### Vaccine

Vaccine is used against virus. It produces antibodies against virus and other foreign antigen. Viruses when entered a human body occupy the metabolic machinery of a cell and start the production of their progeny. It multiplies in a cell with a great speed and impact the nearby cells. After taking the control of metabolic machinery, viruses start

the production of their specific proteins. In this way, cause infections in organisms.

## Anti-biotics

Anti-biotics are part of drugs which are used against the infection caused by bacteria. Antibiotics either kill or inhibit the growth of bacteria.

### Types of antibiotics

Two types of antibiotics on the bases of their action are

#### i. Bacteriostatic

↳ This type of bacteria inhibit the growth of bacteria.

Thus further growth of bacteria is not possible.

#### ii. Bacteriocidal

↳ This type of antibiotics kill the bacteria and prevent a cell from the destruction of a particular bacteria.

## Difference between Vaccine and Antibiotics

Vaccine	Anti-biotics
<ul style="list-style-type: none"> <li>Type of drug used against virus</li> </ul>	<ul style="list-style-type: none"> <li>Drug used against bacteria</li> </ul>
<ul style="list-style-type: none"> <li>Virus was first discovered by Edward Jenner</li> </ul>	<ul style="list-style-type: none"> <li>Discovered by Louis Pasteur</li> </ul>
<ul style="list-style-type: none"> <li>Composed of kill or attenuated (weakened) virus, parts/components of that virus</li> </ul>	<ul style="list-style-type: none"> <li>First anti-biotics prepared from fungi</li> </ul>
<ul style="list-style-type: none"> <li>Vaccines are specific in nature</li> </ul>	<ul style="list-style-type: none"> <li>Bacterias are broad spectrum (against many bacteria) and narrow spectrum (against specific bacteria)</li> </ul>

## B. Differentiate Cyclones, typhoons and Tsunami

Cyclones, typhoons and tsunami are the phenomena related to ocean. These are produced in ocean with bringing devastating effects on the human life and physical environment.

### Cyclon

1- Cyclon is an intense movement of air over ocean. In internal region the low speed of air while on outer region the high speed of air is found.

### Tsunami

1- Tsunami is the intense waves of the ocean produced in an ocean or sea due to some natural disasters like earthquake and volcanic eruption.

1- Cyclone is a generic term used for the intense movement of air over the warm water of ocean. These are called Hurricane in East and West of USA.

2- Tsunami is derived from Japanese word "Tsu" Harbour and "nami" waves. It is produced in all oceans but most common in Pacific i.e. in "Ring of fire" where a number of

**Typhoons:** Type of cyclone occurred in the Northwest region of Pacific. Especially in Japan and China called Typhoon.

active volcanoes present

3- Cyclones are intense and slowly moves

3- Tsunami started abruptly

<sup>2m</sup> Cyclone - the evacuation of the coastal areas possible due to its can be possible because it reached slowly. The evacuation cannot be possible due to its sudden nature.

4 → Affect the coastal areas in the form of strong winds, storms and rain. 4 → It brings about floods and produce earthquake on the land.

5 → Measured by the movement of air and its measurement is easy. 5 → Measured by the Rector Scale of earthquake.

6 → Its prediction is easy. 6 → Its prediction is difficult because occur suddenly.

## C. Short Note on Galaxy

### Galaxy/Galaxy in the Universe

Galaxy is derived from the Greek word "Galaxie" which means milky. Galaxy ~~are~~ is found in universe. In universe there a number

of galaxies which rotate around the centre of universe.

Although galaxy rotates around the centre of galaxy. Our solar system revolve around the centre of galaxy.

#### Definition

Galaxy can be defined as the aggregation of stars, celestial bodies and dust particles which have enough gravitational field and can be attracted toward the

centre of galaxy.

Examples of galaxy

The Milkyway in which our solar system is included is one of the galaxy. Near to Milkyway galaxy the Andromeda galaxy is located. Milkyway galaxy is given this name because it appears light milky colour while observing universe through telescope.

Types of galaxies

There are three types of galaxies

1- Spiral galaxy

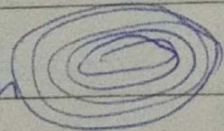
↳ Spiral galaxies helical in nature. They revolved around their centre of galaxy.

2- Disc shaped galaxies

↳ They are disc in shape

3- Eleptical galaxy

↳ ~~They are~~ It is diptical in shape





Q#2

## A- Good fats and Bad fats

### Fats

Fats are the category of bio-molecules it is also called lipids. lipid can be defined as

"lipids are the biomolecules which are made up of organic acid and glycerol."

Fats/lipids are found in human body and in other living organisms.

It provides energy and stores energy in a body in the form of fats (3,7), adipose tissue. It also protects the organs from jerks and acts as a shock absorber for an organ.

### Good Fats

① Good fats are required for a healthy body and mind.

② Good fats have two categories called  
 ↳ mono-unsaturated  
 ↳ poly-unsaturated

③ Mono-unsaturated fats contains increased amount of HDL ie High Density Lipoprotein which decrease low Density Lipoprotein LHL in a body. e.g olive oil, Palm oil

④ Poly-unsaturated fats contain unsaturated

### Bad fats

① Bad fats create many health issues.

Bad fats are of two types  
 ↳ Saturated  
 ↳ Trans fat

Saturated fats are mainly present in animal fat, cream and cheese

Trans-fat are produced through addit

fats e.g vegetable oils, ~~and~~ coconut oil

of hydrogen called hydrogenation e.g Banaspathi ghee, Margarine s

① Good fats are liquid at room temperature.

Bad fats are solid at room temperature

② In unsaturated fats double bonds of carbon present at least one location.

② In ~~unsaturated~~ saturated and trans-fat single bonds are present between atoms.

③ It improves health such lowers the risk of cardio-vascular disease, membrane formation and lower cholesterol level.

It increases health problem such as increases inflammation, atherosclerosis and arteriosclerosis in human.

## B - Five uses of following

### i. Vitamin B-complex

Vitamin B-complex is actually a cluster of many vitamins such as

B<sub>1</sub> = Thiamine

B<sub>2</sub> = Riboflavin

B<sub>3</sub> = Niacin

B<sub>5</sub> = Pyridoxin

B<sub>6</sub> = Pantothenic Acid

B<sub>7</sub> = Biotin

B<sub>9</sub> = Folic Acid

B<sub>12</sub> = Cobalamin

All these vitamins are water soluble and have the following uses in human body

1. ~~General~~ Vitamin B-complex is used for proper nerve function
2. Liver function
3. Energy production
4. Red blood cell production

healthy immune system

S-cell growth and development

## Vitamin E

↳ heart health

↳ wound healing

↳ immune system development

↳ Health of skin

↳ Good for inflammation

## Vitamin D

↳ absorb calcium in blood

↳ develop bones and teeth

↳ Improve nervous coordination

↳ prevent from rickets in children

↳ Regulate calcium and

phosphorus in the body.

## Iron

↳ Iron is useful for red-blood

cell formation. Present in haemoglobin

↳ help to provide oxygen in body

↳ prevent from anemia

↳ for formation of hormones

↳ skin nourishment

## C- Food Adulteration and Types....

### Food Adulteration

Food Adulteration can be defined as the contamination of food, substitution of high value ingredient with low value ingredient or substitute a substance ingredient with other similar ingredient.

So the adulteration is the change in any consumer product for the benefit of the manufactures.

### Types of Adulteration

1. Substituting of an ingredient and replaced it with mean substance

e.g. addition of Banaspati ghee and potato in desi ghee

2. Economic adulteration

↳ is used to make the product cheap by adding cheap ingredients.

When the demand is increased most often adulteration was performed.

### 3- Addition of debris

↳ In cereals and pulses sand and small pebbles were added to increase it its.

### 4- Artificial ripening.

Through different chemicals like ethene the fruits are riped earlier before their time.

## Effects of Adulteration

Adulteration affect an individual in the following ways

- Cause health issues like diarrhea, cancer and gastrointestinal problems.
- Economic loss of the consumer
- Start deteriorating image of the exporting country.
- Severe health problems in children

## Solutions for Adulteration

- Strict control on manufacturers while manufacturing of products.
- Proper checking by quality control team
- Ensure good packing of goods
- Aware people about the qualities of original or pure substance
- Public should boycott such mafia which are playing with human health.
- Proper legislation on state level to curb such issue

## D. Five Food Preservation Method.

Food preservation is an art of preserving food through different techniques for a long period of time.

Some methods of food preservation are given below.



## → Canning of food

The food can be preserved by placing it in air tight cans. First of all the fruit or vegetable is boiled then after drying placed it in an air tight cans. This limit the growth of microorganism in food and can be preserved for a longer period.

## → Drying of food

The water present in food made it vulnerable for microorganism attack. If dry in sun and then preservation can help to preserve the food.

## → Pickling of food / Fermenting

Different vegetables and some fruits are preserved through pickling. Vinegar is added which prevent ~~the~~ <sup>but</sup> microorganism.

microorganism growth. The food can be used for years.

→ Salting of food.

Salt, sugar or nitrates are used for food to preserve.

These remove water from the food and the food can be preserved.