

QUESTION NO#01

A. Difference between Vaccine &
ANTIBIOTIC

→ VACCINE

6/2 vaccine is a biological preparation that improves immunity to a particular disease. A vaccine typically ^{contains} agent which is a disease-causing micro-organism and often made from dead or weakened microbe, its toxins or its surface proteins. This dead or weakened microbe stimulates the body's immune system to recognize any micro-organism and to destroy it if body later in the future encounter it.

For example..

mumps vaccine, rubella vaccine,
Polio vaccine, tetanus vaccines etc.

→ Vaccines are given as a precautionary measure before a body encounters a disease or micro-organisms.

Some vaccines may cause mild reactions

Such as soreness, where it is given and fever, but serious reactions are rare.

→

2.

ANTIBIOTICS

Antibiotics; the word derives from (Greek anti, "against" and biotic "life").
Antibiotics are chemical compounds used to kill or inhibit growth of infectious organisms.

→ Antibiotics are given to a person after encountering a disease or pathogens. They are useful for a wide variety of infections, such as bacterial, fungal or viral infection.

Example: Penicillin, cephalosporin etc.

b)

DIFFERENCE

VACCINE

ANTIBIOTICS

✓ improves immunity

✓ inhibit growth of pathogens.

✓ Inactive, weakened, dead microbes are used in preparation.

✓ Chemical compounds are used in preparation

✓ Can be provided in

✓ Can be provided in the

the form of injections.

form of tablets, pills, injections.

SIDE EFFECTS.

✓ Soreness, fever

✓ diarrhoea, abdominal pain, feeling sick, loss of appetite.

B. Differentiate:

- CYCLONE
- TSUNAMI
- TYPHOONS

1. CYCLONE:

Cyclones are usually called as "Monster from the tropics", which is a large scale closed circulation of system in the atmosphere, combining low pressure and strong wind that rotates counter clock wise in Northern hemisphere and clockwise wise in Southern hemisphere.

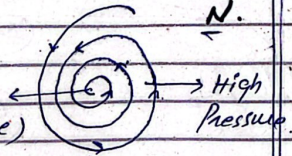
So, a cyclone is a "low pressure system" which forms in tropical regions. It is basically a kind of storm forms over warm oceans and it loses its strength while moving towards cool land.

→ Formation

Cyclones are usually formed because of pressure variations (low pressure at the centre and high pressure outside the storm).

- This low pressure (low pressure) region occurs because

the sun heats the earth unevenly, it shines almost directly near the equator, heating this region more.

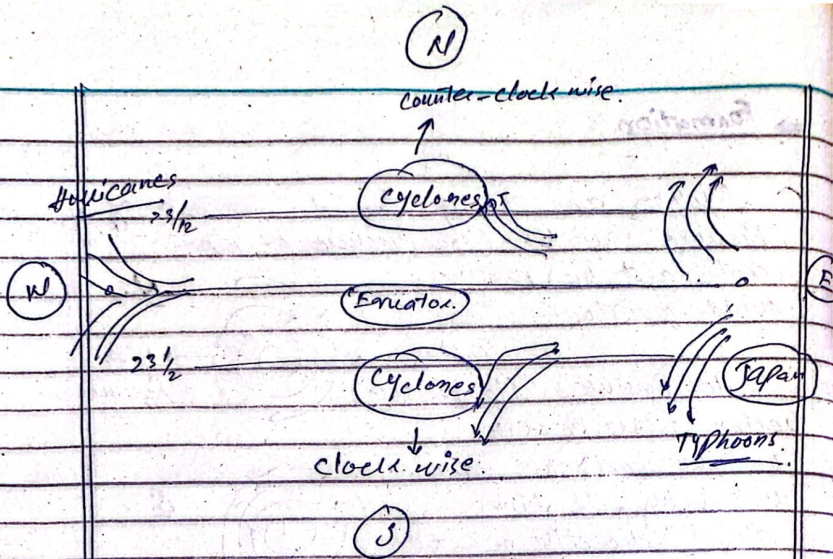


- Cyclones ~~produce~~ usually produce sustained winds of 120 km/hr and faster.

2. TYPHOONS

Typhoons and cyclones are the names of same storms caused by pressure difference basically they are same. The only difference is in their "location".

- Typhoons are storms in the western North Pacific, near Japan. There they called typhoons. So, it is just regional difference and location.



3. TSUNAMI:

↓ Japanese word

↓
Meaning: "harbour wave."

↓
Abnormal sea wave.

which causes catastrophic damages when it hits a coastline.

Tsunami caused by the displacement of any waterbody because of earthquakes or volcanoes. They mostly occur in Pacific ocean's Ring of fire.

Formation:

Produced by an undersea earthquake, landslide or any volcanic activity.

or by crashing of any asteroid into the ocean. All of these activities cause a set of waves in ocean which could be 30 meters high and can travel 100-300 km in the ocean.

These waves when touch coastline cause disastrous flooding.

C. DRM:

Disaster Risk Management

Disaster risk management can be defined as organized and ~~managing~~^{systematic} way of management of resources and responsibilities for dealing with disaster, such as floods, earthquakes, Tsunamis, cyclones, Avalanches, fires etc.

□ Disaster management is a series of four phases, such as

- ✓ Mitigation
- ✓ Preparedness (planning)
- ✓ Response (Action)
- ✓ Recovery

All these stages go in a cycle, often

overlap and severity of disaster determines the length and duration of each stage.

1. Mitigation

Pre-disaster mitigation efforts such as generating building codes, clear territories, preventive health care, public awareness about disaster.

2. Preparedness

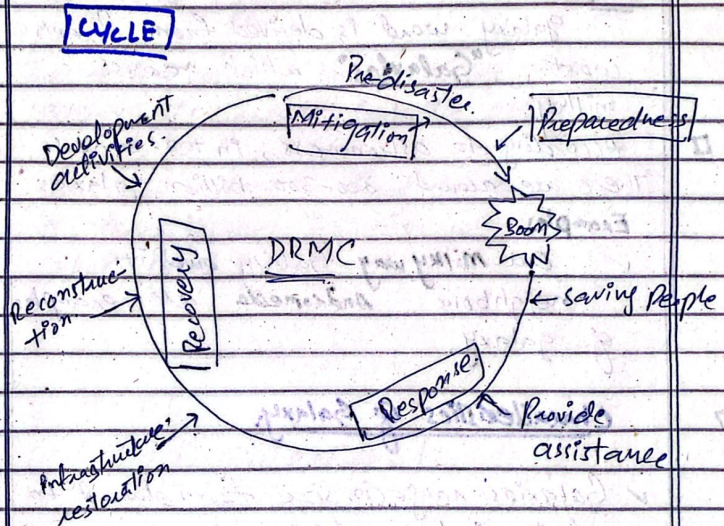
This includes education, outreaching, training of masses and emergency management planning, warning systems, resource management, emergency personnel lists, etc.

3. Response

Immediate reaction of any disaster is the response which includes providing immediate assistance, repairs of damage of infrastructure, health care plans and strategies in hospitals, supply of immediate facilities etc.

4. Recovery.

Recovery includes post-disastrous recovery plans. For example, reconstruction, restoration of infrastructure, ongoing development activities.



Note: Unfortunately (2005-Oct)'s disastrous earthquake showed our country's vulnerability of having no such efficient and systematic disaster risk management system.

4. Define "GALAXY"

66 A galaxy is a gravitational bound system of stars, planets, moons, stellar objects, comets, meteorites, stellar remnants and dark matter. 99

ORIGIN

Galaxy word is derived from Greek word "Galaxias" which means milky.

□ According to astronomer, in the universe, there are around 200-300 billion galaxies.

Examples

✓ Our Milky Way Galaxy and its neighbour Andromeda are examples of galaxy.

□ Characteristics of Galaxy.

✓ Galaxies range in size from dwarf to giants includes trillions of stars.

✓ According to galaxy's morphology, they are categorized as elliptical, spiral, irregular. Our Milky Way is a large disc-shaped galaxy with a bulge in its centre.

✓ Galaxies have black holes as their active centres, which are gravitational

field with an ability to let nothing enter in it, not even light.

Our spiral galaxy is about 13.7 billion years old and it has four arms i.e., Perseus Arm, Sagittarius Arm, Centaurus arm and Cygnus Arm.

The region occupied by our milky way galaxy is called Galactic plane.

Our solar system is found in a cluster of three dozens galaxies which is called local group.

GOOD & BAD FATS.

Lipids are naturally occurring organic compounds known as oils and fats. They provide 9.1 calories energy per gram.

□ Classification

Lipids are classified into saturated, trans and unsaturated fats.

Good Fats Vs Bad Fats

✓ Good fats are liquid at room temperature

✓ Bad fats are solid at room temperature.

✓ Source: obtained from animals foods, such as milk, cheese, meat, Poultry, fish, red meat

✓ Source: obtained from plants in the form of oils, such as canola, olive

✓ Good fats cannot raise cholesterol level

✓ Raise cholesterol level

- ✓ Monounsaturated ✓ fats and polyunsaturated are types of good fats:
- Avacado; vegetable oil,
- nuts, sunflower oil,
- Corn oils, soyabean etc.

Processed food,
 Cookies, Crackers
 butter, ~~milk~~
 margarine, cakes
 etc.

B. 5 uses of following:

D. Vitamin D:

- is useful for
- ✓ calcium absorption in body.
 - ✓ bone function
 - ✓ To treat/avoid rickets (bone deformation)
 - ✓ To treat softening of bones (osteomalacia)

D. Vitamin B (Complex)

- ✓ for carbohydrate metabolism (B₁)
- ✓ for the growth of hair, nails (B₇)
- ✓ cellular respiration (B₂)
- ✓ Energy metabolism (B₅)
- ✓ nucleic acid production & to treat anaemia, fatigue, loss of coordination

□ Iron

Iron is used for the formation of haemoglobin in blood and for metabolism. Iron is very useful to treat anaemia (which is caused by iron deficiency).

□ Vitamin E

Vitamin E is an antioxidant, it is used to treat sterility, anaemia, and any damage to retina of eye.

3. FOOD PRESERVATION METHOD

Food preservation is a method through which food is kept from spoilage after slaughter or harvest.

There are plenty of methods to preserve food.

Some old methods are:

- ✓ Drying
- ✓ salted products storage
- ✓ refrigeration
- ✓ fermentation

✓ Modern methods.

- ✓ Canning
- ✓ Pasteurization
- ✓ Freezing
- ✓ addition of chemicals.

1. Drying.

In this method.

Food is dried to avoid microorganism because growth of microorganism is usually possible due to water content. Therefore, water is removed.

2. Freezing.

Most of the bacteria, yeast, pathogens grow best in warm temp ($16-38^{\circ}\text{C}$). However, below temperature 10°C , the growth rate is slow. Therefore, food is frozen below 10°C to avoid bacteria.

3. Sugar & salt.

Preservation through applying sugar and salt is one of conventional methods of food preservation. In this method, food is preserved by placing them in sugar syrup or salt brine to inhibit bacteria growth.

4. Chemicals

Food is also preserved by putting them in chemicals which are permitted to use in food preservation, such as sulfur dioxide, sorbic acid, sodium benzoate etc. These chemicals have properties to inhibit growth of their microorganisms.

4. Food Adulteration, Types, solution, effects.

“Food Adulteration is an intentional act of debasing food quality by adding additives either by admixture or by subtraction or by removal of important valuable ingredients”.

Types.

- ✓ Poisonous / deleterious substance.
- ✓ Filler / Foreign matter
- ✓ Economic adulteration
- ✓ Microbiological adulteration
- ✓ Incidental contamination



Effects.

- Health issues.
- diseases, cancer, eye disease, heart disease.
- Gastric issues.



Solution

- ✓ Government regulation and set standards.
- ✓ Government must make agencies concerning quality inspection and labeling of specific food ingredients.
- ✓ Nutritional labeling of food.
- ✓ Prices of food must be dictated by the quality of ingredients used.
- ✓ basic and advance research in this field to improve food production and economic value so that no one opt adulteration