

Q1: A - Define Vaccine and Antibiotics. Give difference b/w them.

Vaccine:

"Vaccine is a biological formation that is used to improve immunity of a person against particular disease."

Immunization / Vaccination:

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The process of administering vaccine in order to develop immunity and resistance against a particular disease is called immunization.

Formation of Vaccine and types:

- ① - Live / Attenuated / Weakened Vaccine (from inactive microbes)
- ② - Killed / Inactive vaccine (from dead microbes)
- ③ - Toxoid vaccine (from toxins released from microbes)
- ④ - Conjugate vaccine (from parts of bacteria along with proteins)

Antibiotics:

"Antibiotics are chemical compositions that are used to kill or inhibit bacterial growth or microorganismic infection."

Origin:

Greek word → 'Anti' meaning against
↳ bios meaning life -

Types: 4.

- ① Penicillins → used to treat infections like skin, chest & urinary tract infections
- ② - Cephalosporins → used for serious infections
- ③ - Aminoglycosides → for very serious illness
- ④ - Macrolides → for treating lungs & chest infection

Difference:

Vaccine

Def:

Vaccine is composed of dead, or inactive or weakened microorganisms, toxins secreted from them or their parts to create immunity against a particular disease caused by them.

Target:

They kill virus

Administration: Vaccine can be taken orally or through injection

Antibiotics

Antibiotics are chemical composition of molecules or compounds used to develop resistance or fight against certain microbes i.e. bacteria, fungi & protozoa.

They kill bacteria etc

Antibiotics are available in different forms i.e.

- i) - Oral antibiotics (pills)
- ii) - Topical Antibiotics (creams)
- iii) - Injections (IVs etc)

Terms

Time

Method:

Side effects

Examples

Terme It is mostly taken once with permanent effect

Should be taken every time during infection & disease.

Time Vaccine is administered before the disease is present.

Antibiotics are given after infection or during infection

Method: Vaccines are a preventive method to deal with infection

Antibiotics are used as a cure for disease after infection

Side effects Vaccines may cause allergic reactions

Antibiotics may cause

- diarrhoea
- nausea
- allergic reactions

Examples ① Measles — MMR vaccine

② Poliomyelitis — Polio vaccine

③ Anthrax — Anthrax vaccine

① Penicillin

② Cephalosporin

③ - Tetracycline etc



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B - Differentiate between cyclones, Tsunami and typhoons.

Cyclones:

"Cyclone is a general term for a kind of storm that originates over oceans in tropical areas and coastal regions."


Tsunami:

"Originating from a Japanese word, Tsunami means "harbour wave", a phenomenon of abnormal sea waves caused by a rapid displacement of a body of water i.e. ocean, lakes etc."

Typhoons:

"A type of cyclone (tropical) formed over north western Pacific ocean, characterized by strong winds and heavy rainfall causing floods and landslides is called typhoons."

⇒ Typhoons are known by different names in different regions.



CycloneTsunamiTyphoon1) Causes:

Cyclones originate over oceans in tropical & coastal regions by movement of wind from low to high pressure region.

Tsunamis are caused by sudden displacement of water usually by earthquakes or underwater explosions.

They are tropical cyclones caused by warm water and specific atmospheric conditions i.e. low pressure & high humidity etc.)

2) Warnings:

Cyclones can cause severe damage i.e. floods hence warning is delivered.

Tsunamis often strike little warning

Typhoons are usually tracked to allow people to take protective measures

3) Impact:

Impact low pressure region or northern hemisphere (poles)

Mostly damage coastal areas

Impacts all low lying areas prone to flooding

4) Lifespan & Occurrence:

from ~~hours~~ ^{later} 3-7 days / summer every year

from 10 mins to 2 hours / twice a year

lasts for days even weeks / 20 times a year

5) Affected Areas:

Pacific Ocean - Australia etc

Pacific Rim (Japan etc)

Western Pacific & Southeast Asia

C): Short Note on Galaxy :

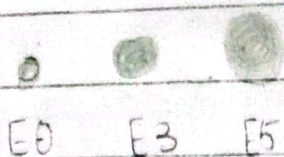
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"Galaxy is the fundamental unit of the universe. It is composed of hundreds of thousands of stars with gas and dust."

Classification of Galaxies :

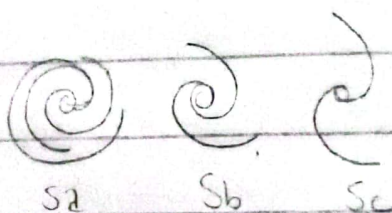
Elliptical Galaxy

- most abundant
- E0 to E7



Spiral Galaxy

- spiral arms
- Sa, Sb, Sc etc



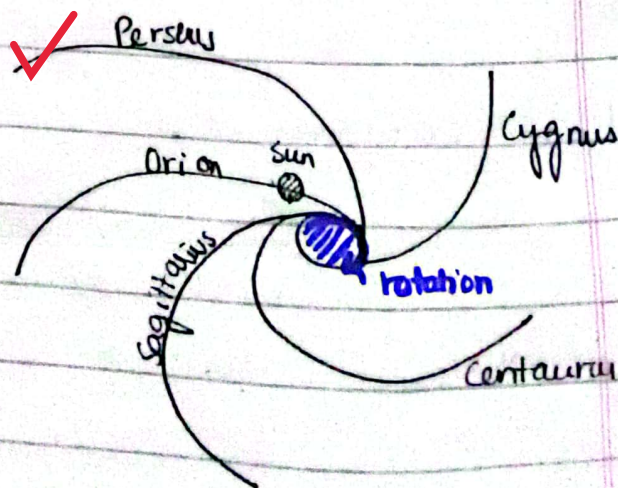
Irregular Galaxy

- no particular shape
- star formation

Milkyway galaxy :

The milky way galaxy is a spiral galaxy almost 100,000 light years in diameter. Its part of collection of other galaxies called local group - It consist of more than 200 bn stars. The

Andromeda galaxy is nearest to Milky way. Solar system is a tiny part of Galaxy and consist of sun and planets



D): Explain DRM

Disaster:

"It is a serious disruption in the functioning of the community or society resulting in social, economic, physical or environmental damage which exceeds the ability to society to utilize their resources."

Difference between

Hazard

* potential for causing injury to life

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graph TD; A[* potential for causing injury to life] --> B[Natural]; A --> C[Manmade]
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Vulnerability

* extent to which hazard causes damage

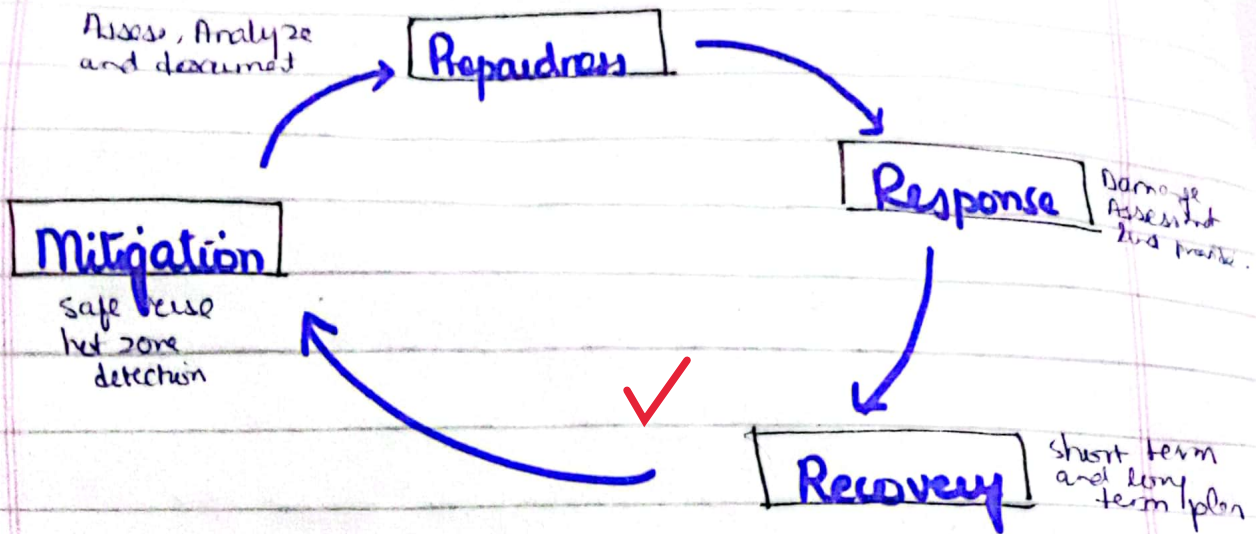
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graph TD; A[* extent to which hazard causes damage] --> B[Physical]; A --> C[Social-economic]
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Disaster Risk Management:

"Disaster Risk Management is the organization and management of all available resources and distribution of responsibilities to deal with a potential disaster (manmade or natural) with minimum damage and maximum resource utilization."

DRM Cycle:

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Mitigation

In mitigation it is importance to reduce the loss by identification of potential problems & mitigate them.

Preparedness:

Data analysis coupled with proactive response is needed for DRM.

Response:

After occurrence, the responders and officials should have latest information regarding the disaster.

Recovery:

After immediate threat to life, property etc is removed, recovery begins.

Disaster Management in Pakistan:

In Pakistan after deadly earthquake of 2008, (NDMO 2007) National Disaster management Authority was formed to deal with disasters & climate change.

Question 2:

A): Diffenciaita b/w. good fats and bad fats.

Good Cholesterol (HDL)

Bad Cholesterol (LDL)

- 1. Good fat is made up of high density lipoprotein
- 2. Good cholesterol helps remove excess fat from cells and tissues through blood.
- 3. Good fats remove plaques from blood vessels ✓
- 4. Good fat (HDL) takes excess cholesterol to liver for metabolism and removal.

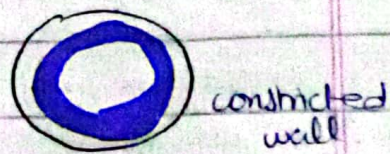
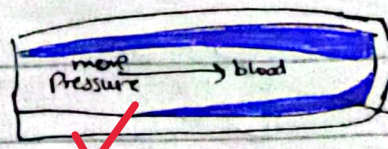
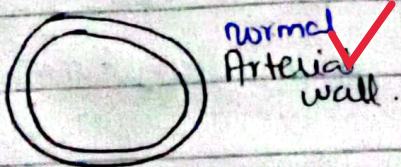
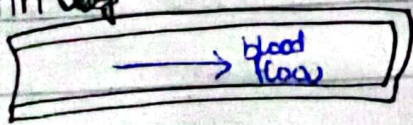
Bad fat consists of low density lipoprotein.

Bad cholesterol (LDL) transfers cholesterol towards body cells via blood.

Bad cholesterol contributes to formation of plaques in blood vessels.

Bad fat accumulates cholesterol in arteries leading to constriction. ✓

5. Artery



6. Normal level
150 - 240 mg/100ml

Normal level
more than
240 mg/100ml

7. Examples

Saturated fats
ie fish, seeds, nuts



Unsaturated fats
ie trans fat, lard,
butter, cheese etc.

8. Normal level require
for normal body
functions and blood
circulation ie
thrombosis

Increased level leads
to chronic heart
diseases and death

B) - 5 uses of each vitamin:

① Vitamin B complex,

- ①. Helps in digestion of carbohydrates
- ②. It keeps the heart and muscle stable
- ③. It is essential for nervous system
- ④. - It helps RBC's formation
- ⑤. - Essential for production of antibodies
- ⑥. It helps in fat metabolism

②: Vitamin E

- ① It is important for wound healing
- ② - It prevents sterility
- ③ - It helps in breaking blood clots
- ④. Prevents damage to cells due to aging

③: Vitamin D :

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- ① Essential for growth in children
- ②. Important element to aid digestion.
- ③. Important for bone development and structure.
- ④ It helps regulate calcium and phosphate.

④: Iron :

- ①. It boosts immunity.
- ② - Iron helps in regulating muscle memory
- ③ - It acts as oxygen carrier
- ④. Important element of hemoglobin formation
- ⑤. It reduces fatigue in body
- ⑥. Iron supports focus (Nervous system assistance)

C): Food adulteration, types, effects and solution:

"An act of intentionally changing the quality of food either by admixing or substituting by inferior material or removal of valuable ingredient is food adulteration"

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Reasons:

- ①. to meet the demand exceeding the supply in market
- ②. - to compete with other market competitors
- ③. - lack of resources (essential raw material)
- ④. - greed for increased profit
- ⑤. Untrained human resource

Types:

- ① Poisonous or Deleterious substance
- ② Microbiological contamination
- ③. Incidental contamination
- ④ Economic adulteration
- ⑤. Filth and foreign matter

Effects:

- ①. Unhygienic products
- ②. - Can cause serious health concerns

- ③ Aggravate certain allergies in people
- ④ - Can be injurious to health.
- ⑤ - Can lead to serious environmental implications

Solution:

- ① Total Quality Management system to be enforced
 - ② - Health ministries to crack down on such practices ✓
 - ③ - Mass campaign against such evil practices
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D): Any 5 food preservation Methods:

- ① Modern preservation methods
 - Canning (heating and sealing in a air tight container) ✓
 - Freezing
 - Dehydration (orendry etc)

② - Ancient Preservation Methods

- Fermentation ✓
- Sun dry
- Curing (salting)
- Drying