

Section A

Q.3.

Definition of proteins

Proteins are type of energy source for the human body. It is a component that is made up of polymers and polymers are made up of monomers.

Functions of proteins

- Assist in building tissues
- Assist in reviving from an injury
- It is considered as best source of muscle building

Elements containing highest composition of protein

- Meat
- Chickpeas
- Fish
- Chicken
- Egg
- Nuts

Classification of proteins

- First classification
- Second classification
- Third classification
- Fourth classification

Definition of carbohydrates

Carbohydrates are considered as chief energy source for plants, animals, and human.

Classification of carbohydrates

- 1) Polysaccharides e.g. Glucose
- 2) Monosaccharides
- 3) Oligosaccharides

→ Digestion

Intake orally → chewed and transferred to stomach → produce energy → building of tissues.

(b)

Atmospheric pressure :

Atmospheric pressure is the composition of air molecules, gas in air and droplets of water molecules.

Measured by :: Barometer

Elements in atmosphere :

- | | | |
|----|----------------|------|
| 1) | Oxygen | 21% |
| 2) | Carbon dioxide | 78.1 |
| 3) | Nitrogen | 0.9% |

Reactions due to atmospheric pressure :

- Precipitation
- Cyclones
- Tornado
- hailstorm
- hurricane
- Typhoon
- Snowfall
- Tsunami

What is Humidity?

Humidity is an environmental phenomena that reflects the density of air and atmosphere.

Effects caused by humid air

- 1) Formation of rain
- 2) oily skin
- 3) dry weather becomes moist
- 4) erosion of metal
- 5) erosion of paints

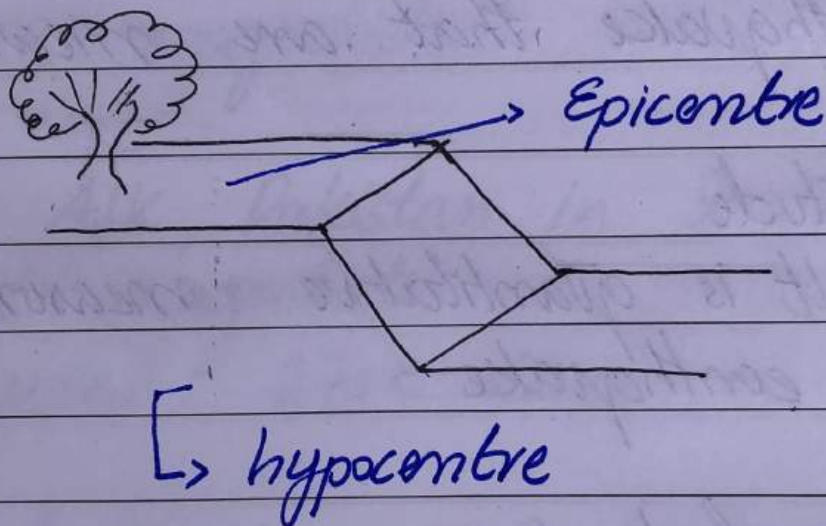
Chemical reactions in atmosphere

- Condensation
- Evaporation
- Photosynthesis in plants — plants decompose carbon dioxide.

(C)

Definition

Earthquake is a natural phenomena that is caused by the movement of plate boundaries. It is considered as the most disastrous of catastrophes.



Causes of earthquake

- 1) Movement of plate boundaries (Plate tectonics)
- 2) Sea volcanoism
- 3) Nuclear tests
- 4) Mining practices - bombing
- 5) Continental shifts

b) Airstrikes

Effects of earthquake:

- Tsunami
- Mass destruction of infrastructure

How it is measured?

There are two elements of earthquake that are measured

1) Magnitude

It is quantitative measurement of the earthquake

- Objective fact
- measured by richter scale (introduced in 1935)

2) Intensity

It is the measure of overall effects of the earthquake

- Subjective fact

- Qualitative plus quantitative measurement
- Measured by merchalli scale

Destructive earthquakes in history

- 1) In Chile in 1960 (Around 9.6 magnitude)
- 2) In AJK, Pakistan in 2005 (Around 7.6 magnitude caused 270k lives)
- 3) In Indonesia in 2004 (around 9.1-9.3 magnitude) caused tsunami and massive atrocities.

(D)

Definition

Radar is the type of device that catches signals in form of electromagnetic waves.

Used for :

- 1) Communication in control towers of airports.
- 2) Widely used in defense system of military bases.

Question No. 5

(a)

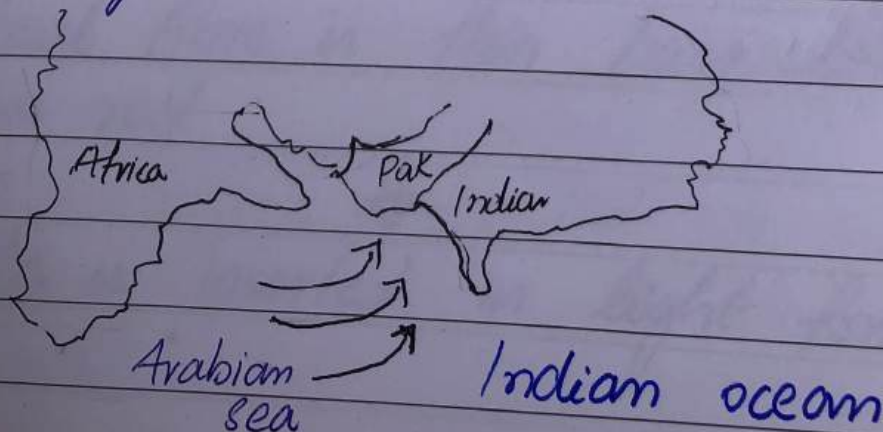
Definition :

Sea surface temperature rise is a natural phenomena that is caused by oceanic currents, winds (tropical).

e.g temperature rising above 25°C

How it affects the formation of tropical cyclones

Cyclones are type of abnormal seawave occurred at the region of Indian ocean.



تاریخ: _____

Formation of cyclone :

Cyclones are often formed due to rising sea temperature.

Winds above 120 km/h

It creates winds of 450-500 km/h

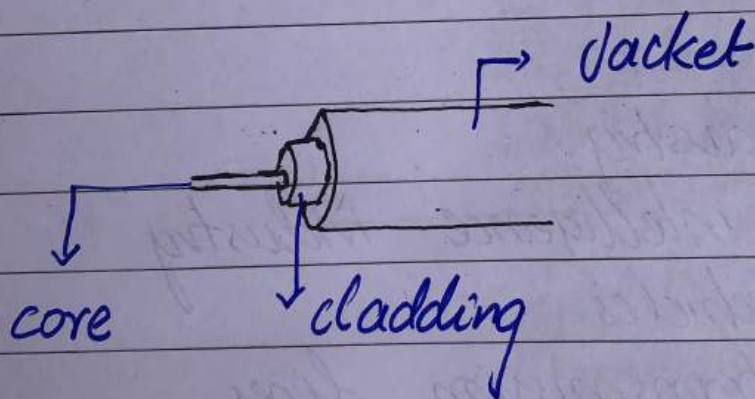
Recent example

- Biparjoy (expected in Indian ocean around guadar coastal belt in 2023)

(B)

Definition ::

Optical fibre is a type of cable that is made up of thin glass. It uses the phenomena of refraction of light to transfer the information from one end to another.



How data is transferred ?

Optical fibre is thin hair like glass rod.

Data is inserted in light form

↓
light is processed in glass rod

↓
light is refracted due to total internal reflection.



Output

Input

Prevalent usage of optical fibre

- 1) Health industry
- 2) Artificial intelligence industry
- 3) Electric vehicles
- 4) Internet transmission lines
- 5) Information technology department

Advantages

- Minimal loss of information
- swift delivery

Disadvantages

- High repairing cost
- Costly installation

(D)

Definition of food additives

Food additives are components used unintentionally or intentionally to destroy the very essence of product and maximise the profit.

Types of Additives

- 1) Contaminants - Dry food
- 2) Adulterants - Oily food.

Examples of additives

- 1) Contaminants - Insecticides and pesticides spray - remnants on

fruits and vegetables.

2) Adulterants → Water in milk.

Reasons for using additives

- Profit maximisation
- Deceiving consumers

Effects / Implications

- low hygiene
- Food poisoning

Way forward

- District food control authority must take actions.
- Heavy fines on ones indulged in it.

Definition of Food preservatives

Food preservatives are protecting elements added in the food that delays the rancidity of food.

Types of food preservatives

- 1) Preservatives — often used for dairy products
- 2) Anti-oxidants

Examples

Rosemary extract

Anti-oxidants are types of preservative that delays the oxidation rancidity of the products ultimately delaying the lifespan.

Question No. 7

(A)

Data:

Average of 7 numbers = 20
find largest numbers of
these

Formula:

$$\text{Mean/avg} = \frac{\text{Values}}{\text{no. of values}} = \frac{n_1 + n_2 + n_3 + \dots + n_7}{7}$$

Solution ::

$$\frac{n_1 + n_2 + n_3 + n_4 + n_5 + n_6 + n_7}{7} = 20$$

letting n_7 be highest

$$n_7 = \frac{20 \times 7}{1} = 140$$

$$n_1 + n_2 + n_3 + n_4 + n_5 + n_6 + n_7 = 21$$

formula becomes

$$n_7 = 140 - 21$$

$$n_7 = 119$$

(B)

Data ::

$A \longleftrightarrow C$ $A \longleftrightarrow D$
(cousins) (cousins)

find rel b/w $D \longleftrightarrow C$

Solutions

if D is not brother of C but
cousin of A

Thus, D is sister of C

Relation between D and C :

Brothers and sister (siblings)

(C)

(iv) 354

(v) 36

(L) 48

(ii) 293

(iii) 93

Question No. 6

Data:

Current value = 8748

Depreciated by 10% for 3 years

$$\begin{array}{l} 1) \quad 10\% \text{ of } 8748 = 874 \\ \text{adding } 10\% \text{ to } 8748 \\ = 9622 \end{array} \quad \begin{array}{r} 8748 \\ + 874 \\ \hline 9622 \end{array}$$

$$\begin{array}{l} 2) \quad 10\% \text{ of } 9622 = 962 \\ \text{adding } 10\% \text{ to } 9622 \\ = 10584 \end{array} \quad \begin{array}{r} 9622 \\ + 962 \\ \hline 10584 \end{array}$$

$$\begin{array}{l} 3) \quad 10\% \text{ of } 10584 = 1058 \\ \text{adding } 10\% \text{ to } 10584 \\ = 11642 \end{array} \quad \begin{array}{r} 10584 \\ + 1058 \\ \hline 11642 \end{array}$$

Price of washing machine three years ago was 1164

(B)

Data ::

$$\text{Daughter} = \frac{1}{4} \times \text{Father}$$
$$D = \frac{F}{4} \quad \text{--- eq (i)}$$

$$\text{Father} = 4 \times \text{daughter}$$

$$F = 4D \quad \text{--- eq (ii)}$$

$$D = \frac{F}{4} \quad \text{--- eq (iii)}$$

after 5 years :

$$F + 5 = 3(D + 5) \quad \text{--- eq (iv)}$$

putting eq (iii) in eq (iv)

$$F + 5 = 3 \left(\frac{F + 5}{4} \right)$$

$$F + 5 = 3 \left(\frac{F + 20}{4} \right)$$

$$F + 5 = \frac{3F + 60}{4}$$

$$4F + 20 = 3F + 60$$

$$4F - 3F = 60 - 20$$

$$\neq \boxed{F = 40}$$

putting $F = 40$ in eq (i)

$$F = 4D \Rightarrow 40 = 4D$$

$$\boxed{D = 10}$$

After another 5 years

father will be $\boxed{45}$

and daughter will be $\boxed{15}$

~~Thus daughter will be~~

Thus father's age will be 3
times of daughter

(C)

Data :

diameter of circle = 12 cm

Solution :

$$\text{Area of circle} = \pi r^2$$

تاریخ: _____

$$r = \frac{d}{2}$$

radius = 6

$$\pi = 3.14 \quad / \quad (22/7)$$

Area =

$$3.14 \times (6)^2 = 36$$

$$= 3.14 \times 36$$

$$= 113.04$$

$$3.14^2$$

$$\begin{array}{r} 118 \overline{) 84} \\ 94 \ 2 \times \\ \hline 113.04 \end{array}$$

(D)