

General Science and Ability

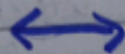
Question 2:

(2) Climate Finance an Important topic for COP28:

The host United Arab Emirates (UAE) has made clear that it intends to make progress on climate finance at COP28.

In mid-October, Dr. Sultan Ahmed Al Jaber, the President-designate for COP28, circulated a letter discussing priorities for upcoming summit. Featured prominently was the need to radically scale up climate financing by delivering on old "promises" and setting the framework for new finances.

COP28 is also due to publish the first iteration of a roadmap for future food systems from the Food and Agriculture Organisation. It will be vital to set milestones for fair sustainable food systems and also ensure that the biggest emitters of agriculture and mineral fertilisers agree to absolute cuts in methane and 50pc nitrogen reduction in farming practices by 2030. COP28 has the opportunity to see a new narrative that can turn the tide of global climate action.



(b)

(b)

Water soluble vitamins

Fat soluble vitamins

1. A group of vitamins that can dissolve in water.
2. Absorption takes place in small intestine.
3. Travels freely in the body without requiring carrier proteins.
4. They are not stored except vitamin B12.
5. Surplus vitamins are detected in kidneys and removed in urine.
6. They act as coenzymes.
7. Deficiency manifests rapidly as there is no storage.
8. Toxic levels possible when consuming supplements.
9. Frequent doses required.
10. Vitamin B complex and vitamin C.

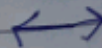
1. Soluble in organic solvents and are absorbed and transported in a manner similar to fats.
2. Bile salts are required for absorption.
3. Transportation by carrier proteins.
4. Stored in liver and fatty tissues.
5. Usually the surplus vitamins are stored.
6. These do not act as coenzymes.
7. Deficiency manifests only when stores are depleted.
8. Toxic levels likely when consuming supplements.
9. Periodic doses required.
10. Vitamin A, D, E and K.

(c)

(b) Examples of Diets containing vitamins:

Vitamins
Vitamin B1
Vitamin B2
Vitamin B3
Vitamin C
Vitamin A
Vitamin D

Food sources
Whole grains, meat, fish
liver, eggs, green vegetables
Chicken, beef liver, peanuts
oranges, Papaya, peas
Green leafy vegetables, milk
Egg yolk, Spinach, fatty fish.



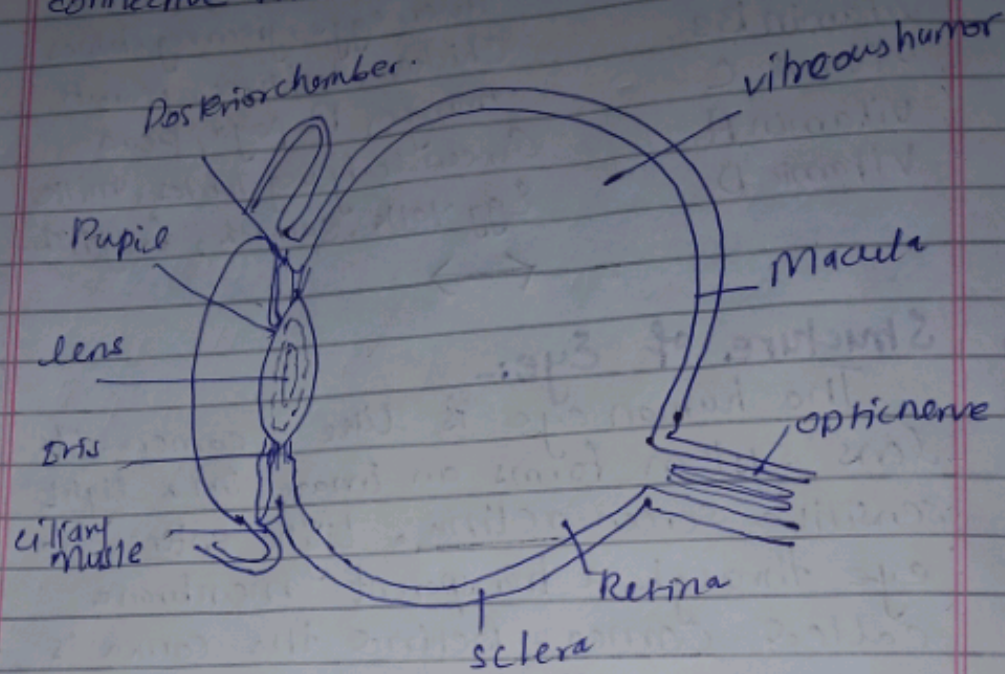
(c) Structure of Eye:-

The human eye is like a camera. Its lens system forms an image on a light sensitive screen retina. Light enters the eye through a transparent membrane called cornea. Behind the cornea is a muscular diaphragm called iris which has opening called pupil. Iris is the dark muscular diaphragm that controls the size of pupil. The crystalline lens provides adjustment of focal length required to focus on objects at different distances on the retina.

The ciliary muscles helps to change the curvature of the lens and to change its focal length. eyelids protect the eyeball from foreign particles coming in contact with its surface. Bulbus oculi is globe shaped and 24mm in diameter. Outer layer consist of sclera and cornea. Middle layer consist of iris, Choroid and ciliary body. Inner layer consist of Retina.

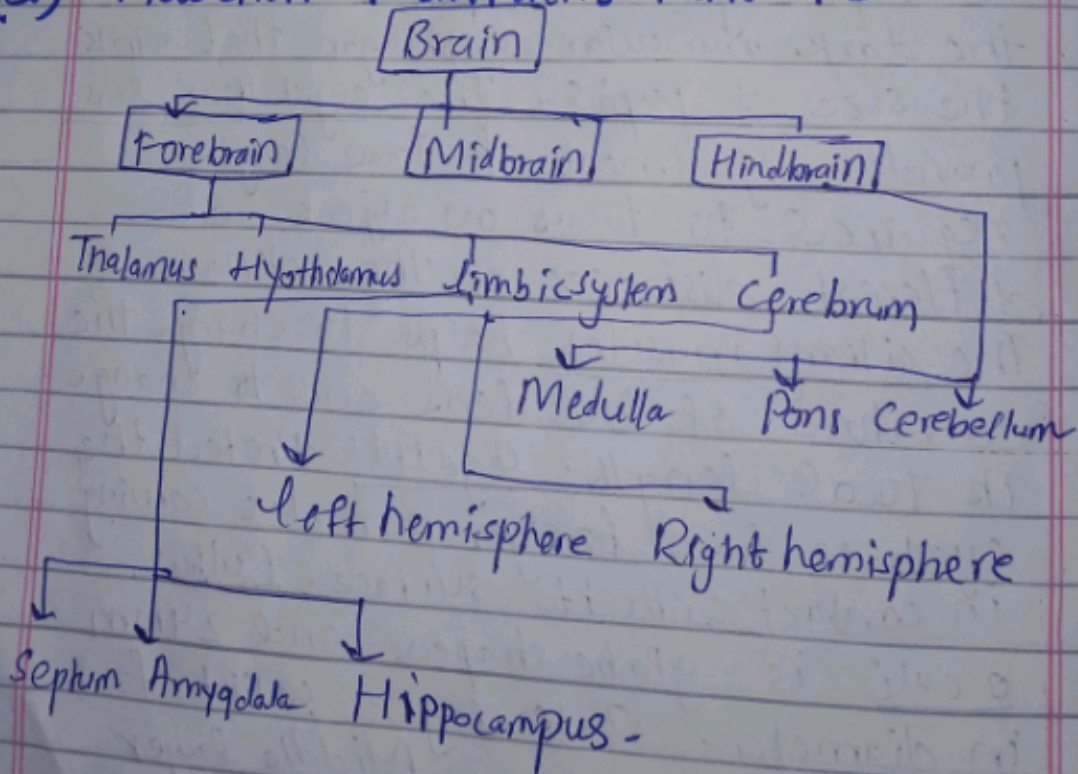
Vitreous is Jelly like substance that fills the middle of eye. Choroid is thin vascular layer lying between the connective tissue.

(2) Let as 2
4x



(b)

(c) Flowchart of different parts of Brain:



Question 6

(2) Let's consider the shorter piece as x . So the longer piece will be $4x$

$$4 \times 4x = 4x$$

$$4x + 3x = 300$$

$$5x = 300$$

$$x = \frac{300}{5}$$

$$x = 60 \text{ ft} \dots$$

So 60 ft \rightarrow length of shorter piece

$60 \times 4 = 240 \text{ ft} \rightarrow$ length of larger piece

(b) let the length of rectangle = $3x + 3$

$$\text{width} = 2x$$

$$\text{Perimeter} = 2(l + b)$$

$$20 \text{ inches} = 2(3x + 2x)$$

$$20 = 2(5x)$$

$$20 = 10x$$

$$x = 2$$

$$\text{length} = 3 \text{ cm}$$

$$\text{width} = 2 \text{ cm}$$

$$L = 2W + 3$$

$$L \times W = 20 \text{ inches}$$

$$(2W + 3)W = 20$$

$$2W^2 + 3W - 20 = 0$$

$$W(2W + 3) + (3W - 20) = 0$$

$$2W + 3 + 3W - 20 = 0$$

$$2W + 3W + 3 - 20 = 0$$

$$5W - 17 = 0$$

$$5W = 17$$

$$W = \frac{17}{5} \text{ cm}$$

(c) Solution:-

Let the number of matches played be = x

$$(100 - 60) \cdot \frac{1}{5} \text{ of } x = 24$$

$$40 \cdot \frac{1}{5} \text{ of } x = 24$$

$$\frac{2 \cancel{0} \cancel{0} (x)}{\cancel{100}} = 24$$

$$\frac{2x}{5} = 24$$

$$x = \frac{24 \times 5}{2} = 60$$

So No of matches played during this year are 60.

(d)

Solution:-

Let the numbers are $3x$ and $2x$
Number added to 1st is 2 $\rightarrow 3x + 2$

Number added to 2nd is 6 $\rightarrow 2x + 6$

$$\frac{3x + 2}{2x + 6} = \frac{4}{5}$$

$$5(3x + 2) = 4(2x + 6)$$

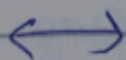
$$15x + 10 = 8x + 24$$

$$15x - 8x = 24 - 10$$

$$7x = 12$$

$$x = \frac{12}{7}$$

The numbers are 12 and 7

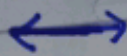


Question 7

- (a) total seats = 400
occupied = 325
Attendance at a percent of capacity = ?

$$= \frac{325 \times 100}{400}$$

$$= 81.25\%$$



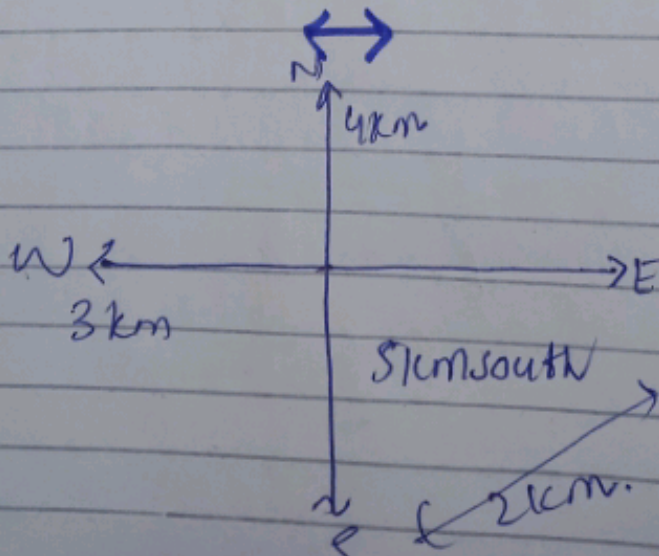
- (b) Based upon given condition
 $40 \times 10 \div 30$

$$= \frac{40 \times 10}{30} = \frac{40}{3}$$

$$\frac{320 \text{ kg} \times \pi}{80} = ?$$

$$\frac{320\pi}{80}, \quad 320\pi = 80, \quad \pi = \frac{80}{320} = \frac{1}{4} \text{ days}$$

(c)



(d)

Formula $2\pi r(r+h)$

$$= 2 \left(\frac{22}{7} \right) (10) (10+36)$$

$$= 2(3-14)(10)(46)$$

$$\text{Volum.} = 2,888.8 \text{ cm}^3$$

