

## Section - II

### Question No. 8

(a) BROTHER  $\rightarrow$  QDGSNQA  
SISTER  $\rightarrow$  QDSRHR

The answer is obtained by moving one step backwards in the alphabetic series, when the two words 'SISTER' and 'QDSRHR' are looked in reverse.

(b) Box  $\rightarrow$  12 cards (1, 2, 3, 4, 5, ..., 12)

(i) Probability of '8'

$$\text{Prob. (8)} = \frac{1}{12}$$

(ii) Probability of an even number

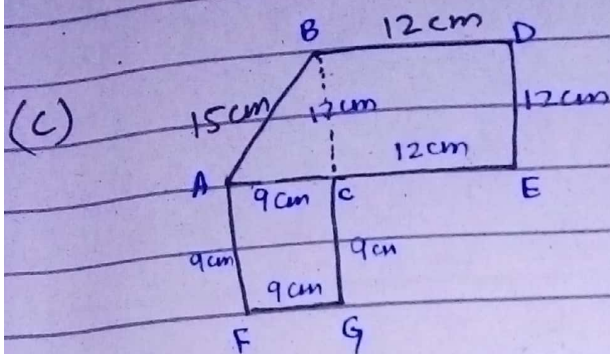
$$\text{Prob. (even no.)} = \frac{6}{12} = \frac{1}{2}$$

(iii) Probability of a negative number

$$\text{Prob. (negative no.)} = \frac{0}{12} = 0$$

(v) Probability of a number less than 13

$$\text{Prob. (less than 13)} = \frac{12}{12} = 1$$



Using the Pythagoras Theorem,

$$(\text{hyp})^2 = (\text{perp.})^2 + (\text{base})^2$$

$$(15)^2 = (12)^2 + (AC)^2$$

$$\cancel{225} = \cancel{144} +$$

$$225 = 144 + (AC)^2$$

$$(AC)^2 = 225 - 144$$

$$\sqrt{(AC)^2} = \sqrt{81}$$

$$AC = 9$$

Area of Square BCED,

$$= l \times w$$

$$= 12 \times 12$$

$$= 144 \text{ cm}^2$$

Area of triangle ABC,

$$= \frac{1}{2} \times b \times h$$



$$= \frac{1}{2} \times 9 \times 2$$

$$= 54 \text{ cm}^2$$

(c) Area of square AFGC,

$$= L \times w$$

$$= 9 \times 9$$

$$= 81 \text{ cm}^2$$

Total Area of the figure,

$$= 144 + 54 + 81$$

$$= 279 \text{ cm}^2$$

$$\begin{array}{r} 144 \\ 54 \\ 81 \\ \hline 279 \end{array}$$

(d) Perimeter of square BCEC,

$$= 2(L+w)$$

$$= 2(12+12)$$

$$= 2 \times 24$$

$$= 48 \text{ cm}$$

Perimeter of triangle ABC,

= ~~the~~ sum of all sides

$$= 12 + 15 + 9$$

$$= 36 \text{ cm}$$

Perimeter of square AFGC,

$$= 2(L+w)$$

$$= 2(9+9)$$

$$= 2 \times 18$$

$$= 36 \text{ cm}$$

$$\begin{array}{r} 18 \\ 2 \\ \hline 36 \end{array}$$

Total Perimeter of the figure,

$$= 48 + 36 + 36$$

$$= 120 \text{ cm}$$

$$\begin{array}{r} 48 \\ 36 \\ 36 \\ \hline 120 \end{array}$$

(d) 15, 15, 16, 16, 16, 17, 17, 18, 19  
 $n = 9$

Mean :-

It is the average of all values. It is obtained by following formula:

$$\text{Mean} = \frac{\text{Sum of all numbers/values}}{\text{no. of values}}$$

$$\begin{array}{r} 90 \\ 10 \\ 18 \\ 14 \\ 17 \\ \hline 149 \end{array}$$

$$\text{Mean of above series} = \frac{15+15+16+16+16+17+17+18+19}{9}$$

$$= \frac{149}{9}$$

$$= 16.5$$

$$\begin{array}{r} 16.5 \\ 9 \overline{) 149} \\ \underline{9} \\ 59 \\ \underline{54} \\ 50 \\ \underline{45} \\ 5 \end{array}$$

Median:-

It is the center most value in a series arranged in ascending or descending order, in case of odd number of series. While if the series has even number of terms, it is obtained by taking average of two middle terms.

$$\text{Median of above series} = 16$$



(c) Mode:- It is the term that is most frequent in the series.

Mode in above series = 16 (occurs 3 times)

Range:- It is the difference between maximum and minimum value in an arranged series of data.

$$\begin{aligned}\text{Range of above series} &= \text{max.} - \text{min.} \\ &= 19 - 15 \\ &= 4\end{aligned}$$

### Question No. 7

(a) Number of Seats = 400  
Seats occupied = 325  
Percentage of Attendance = ?

$$\begin{aligned}\text{Percentage of attendance} &= \frac{\text{No. of seats occupied}}{\text{Total no. of seats}} \times 100\end{aligned}$$

$$\begin{array}{r} 81.25 \\ 4 \overline{) 325} \\ \underline{32} \phantom{0} \\ 5 \phantom{0} \\ \underline{4} \phantom{0} \\ 10 \phantom{0} \\ \underline{8} \phantom{0} \\ 20 \phantom{0} \\ \underline{20} \\ 0 \end{array}$$

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

$$= 81.25\%$$

Therefore, there is 81.25% attendance in the hall with respect to the capacity.

(b)	Persons	Sugar (kg)	Days
	30 $\uparrow$	40 $\uparrow$	$\uparrow$ 10
	80 $\downarrow$	320 $\uparrow$	$\uparrow$ x

Using arrow method,

$$\frac{x}{10} = \frac{320}{40} \times \frac{80}{30}$$

$$\frac{x}{10} = \frac{320}{40} \times \frac{30}{80}$$

$$x = \frac{32 \times 2}{3} \times 10$$

$$x = \frac{640}{3}$$

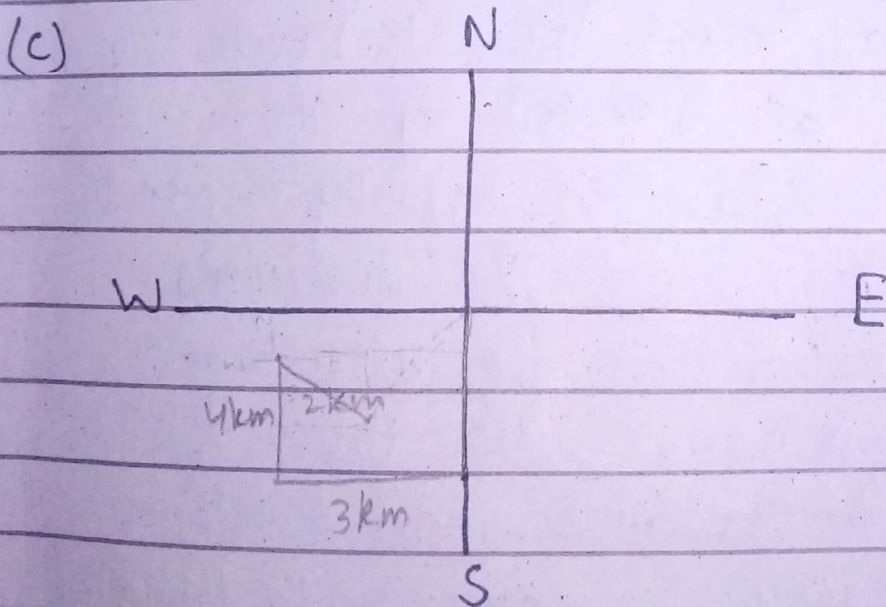
$$x = 213.3$$

$$x = \frac{9 \times 3}{8} \times 10$$

$$x = \frac{270}{8}$$

$$x = 33.7$$

Therefore, in ~~213.3~~ 33.7 days 80 persons will use 320 kg of sugar.





(d) Radius of cylinder = 10 cm

Height // = 36 cm

Volume // = ?

Volume of cylinder,

$$= 2\pi rh$$

$$= 2 \times 3.14 \times 10 \times 36$$

$$= 2260.8 \text{ cm}^3$$

②  
31.4

72

①  
0828

2198 X

2260.8

Section - I

Question No. 2

(a) Climate Finance For Developing Countries -

Climate change results in vast destruction in the form of floods, global warming, forest fires, etc. Developing countries are most affected by the climate change that is actually created by the developed world. The developed countries are responsible for releasing most of the pollutants into the atmosphere and because under-developed countries lack enough resources to tackle the disaster, so they suffer the most. One example is the 2022 flood in Pakistan, which destroyed thousands of households. Pakistan still <sup>the</sup> lives need about \$30bn to recover from the challenge



according to the statistics released by the government of Pakistan. Although, the developed nations have provided some aid to Pakistan but that is not enough to recover the loss of \$40bn. The main reason of this massive flood was the melting of glaciers in the Northern region of Pakistan. However, glaciers melt due to climate change which is contributed by the developed countries. Therefore, COP-28 must focus on providing climate finance to developing nations so that they can prepare themselves for future disasters and recover from the loss of previous ones.

Moreover, the developing countries are taking steps to mitigate climate change. The billion tree Tsunami campaign of Pakistan is one example. However, the developed countries are still unsuccessful in meeting the targets set in previous COP and other agreements related to climate change. Thus, the COP-28 meeting must have the consent to provide the developing world with sufficient climate finance which is their right.

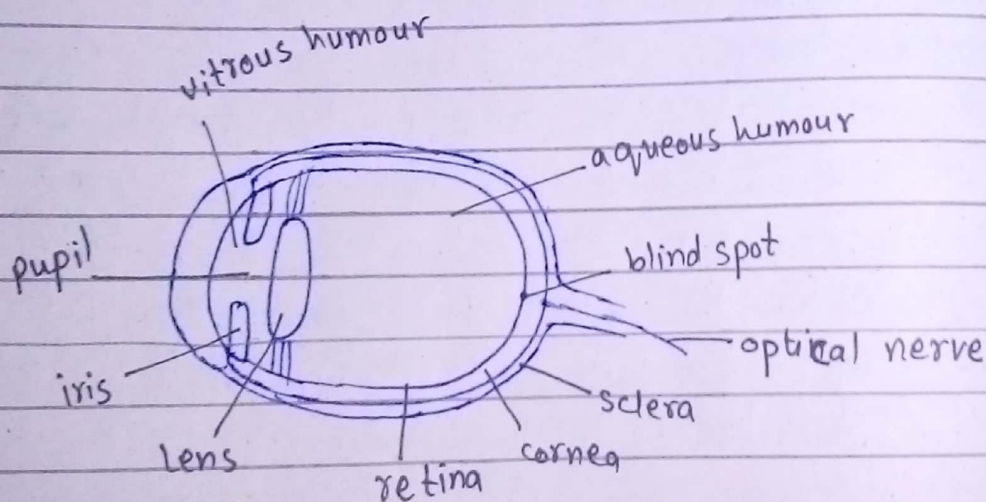


## (b) Water-Soluble and Fat-Soluble Vitamins:-

Water-Soluble	Fat-soluble
<ul style="list-style-type: none"><li>• These vitamins can dissolve in water.</li><li>• Example:- Vitamin B complex and vitamin C</li></ul>	<ul style="list-style-type: none"><li>• These vitamins do not dissolve in water</li><li>• Example:- Vitamin A, D, E, K</li></ul>

- Vitamin A is present abundantly in carrots.
- Vitamin C is present in all citrus fruits, for example, oranges, lemons, etc.
- Vitamin D is mostly obtained from sunlight.

## (c) Structure of Eye:-



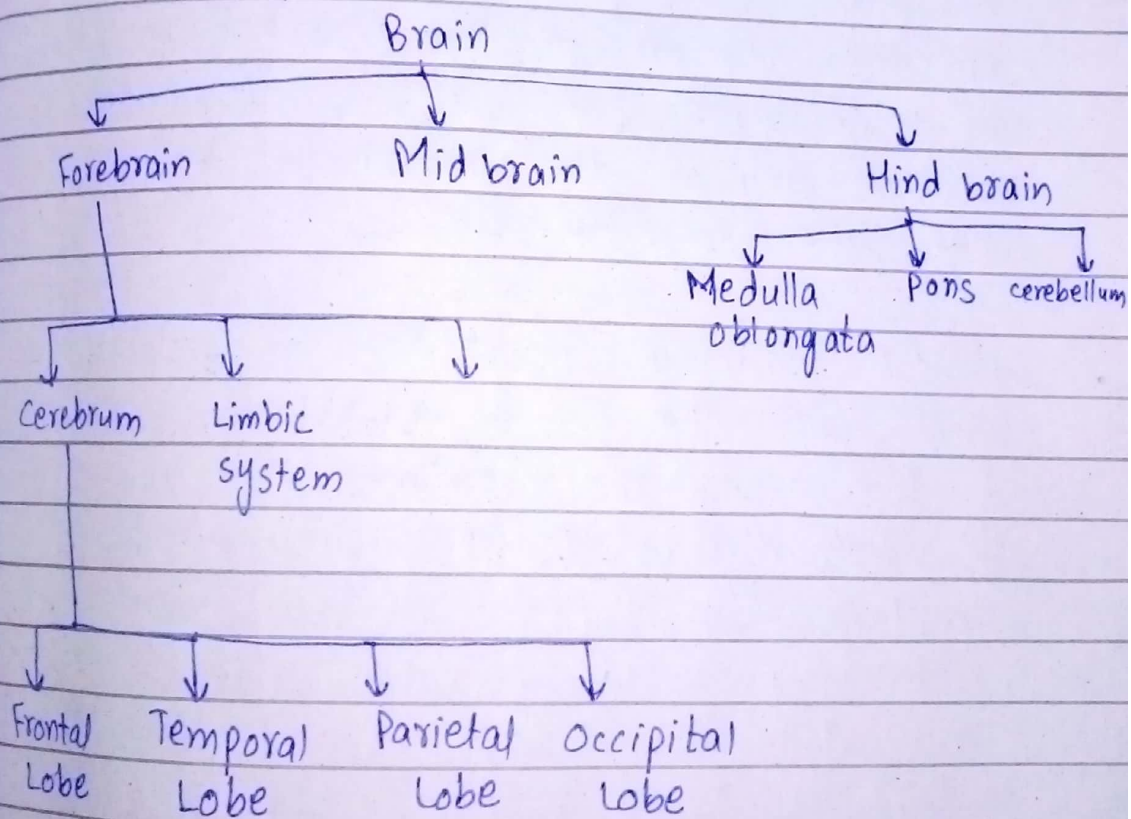
Eye is surrounded by three layers. The outer most layer is sclera, which protects the eye and gives it white colour. The inner most layer is called retina. It contains rods and cones that help in viewing different

objects and different colours.

The part of eye which receive light is iris, which surrounds the pupil. Pupil contracts and relax depending on the intensity of light and some other factors. Light is then directed to lens and from lens to retina.

The Image is formed in retina, which is carried through optic nerve to brain. Brain inverts the image received from retina and makes the image comprehensible.

(d) Parts of Brain:-





### Question No. 3

(a) Global Warming:-

Global warming is a wild beast ~~and~~ we are poking at it with sticks as we are taking insufficient steps to mitigate it.

- It is causing many disasters such as floods, which are resulting due to the rapid melting of glaciers. To ~~mitigate~~ reduce the rate of melting of glaciers, we have to plant more trees and reduce CO<sub>2</sub> emission to prevent the global rise in temperature. But we have failed to achieve any of the targets set to cut the emission of CO<sub>2</sub>.

- Global warming results in forest fires, which cause the loss of vegetation, loss of biodiversity and sometimes the loss of human lives too. The developed countries are trying to develop ~~re~~ technology to avoid such incidents but still we have observed the deadliest forest fires in 2023. The measures should be taken to reduce the global temperature.



This year has been recorded as the hottest year with a lot of destruction in the form of forest fires, floods, etc. However, the steps taken to avoid such mishaps in future are insufficient. Thus, we are poking at the wild beast of global warming with sticks.

(c) Semi-conductors:-

Semi-conductors are made of P-N junctions. P-N junctions contain positive ions at one side and negative ions at the other. A good example of semi-conductors is silicon.

(d) Eclipse:-

Eclipse occurs when either moon or earth ~~comes between~~ disrupts the rays of sun coming to earth and moon respectively.

Solar Eclipse:-

In solar eclipse, ~~sun~~ earth comes between moon and sun and disrupts the rays reaching moon.

Lunar Eclipse:-

In Lunar eclipse, ~~sun~~<sup>moon</sup> blocks sun rays coming to Earth.