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Q.No. 7 Part d

Given data

Dome of rock is Jerusalem is an octagonal structure = 8 sides

Length of each side = 8 meters

Perimeter of Dome = ?

Solution

octagonal structure means = 8 sides

Perimeter of Dome = sum of all the sides

$$\begin{aligned} \text{Perimeter of Dome} &= 8\text{m} \times 8 \text{ sides} \\ &= 8 * 8 + 8 + 8 + 8 + 8 + 8 + 8 \\ &= 64\text{m} \end{aligned}$$

Perimeter of Dome = 64m

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### QNO. 7 Part C

#### Given Data

Scooty is sold for = Rs 13600

Loss over sold price = 15%

Cost Price of scooty = ?

#### Solution

First find the loss amount

Loss amount is 15% of sold price

$$\text{Loss amount} = 15\% \text{ of } 13600$$

$$= \frac{15}{100} \times 13600$$

Profit or loss is always calculated on cost price, not on sale price.

$$\text{Loss amount} = 2040 \text{ Rs}$$

$$\text{Cost Price of scooty} = \text{Sold Price} + \text{Loss amount}$$

$$= 13600 + 2040$$

$$= 15640 \text{ Rs}$$

$$\text{Cost Price of scooty} = \text{Rs } 15640$$

13600
15
880
364
2040
13600
15640



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## Q NO. 7 Part b

## Given data

Bag contain 2kg of apples &amp; 3kg of grapes

Ratio of quantities = ?

Percentage occupied by each = ?

## Solution:-

Total quantity in the bag = apples + grapes

$$= 2 + 3$$

$$= 5 \text{ kg}$$

Ratio of apples in the bag =  $\frac{2 \text{ kg}}{5 \text{ kg}}$ 

$$= 0.4$$

Ratio of grapes in the bag =  $\frac{3 \text{ kg}}{5 \text{ kg}}$ 

$$= 0.6$$

2:3

Ratio of apples &amp; grapes

Apples : grapes

0.4 : 0.6

## Percentage

Percentage of space occupied by

$$\text{apples} = \frac{2}{5} \times 100$$

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$= 0.4 \times 100$

$= 40\%$

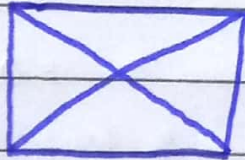
Percentage of space occupied by grapes =  $\frac{3}{5} \times 100$

$= 0.6 \times 100$

$= 60\%$

QNo 7 Part a

Given Data



Find number of triangle - ?

Solution

Total number of triangle in given figure is four



## Q No. 8 Part a

### Given data

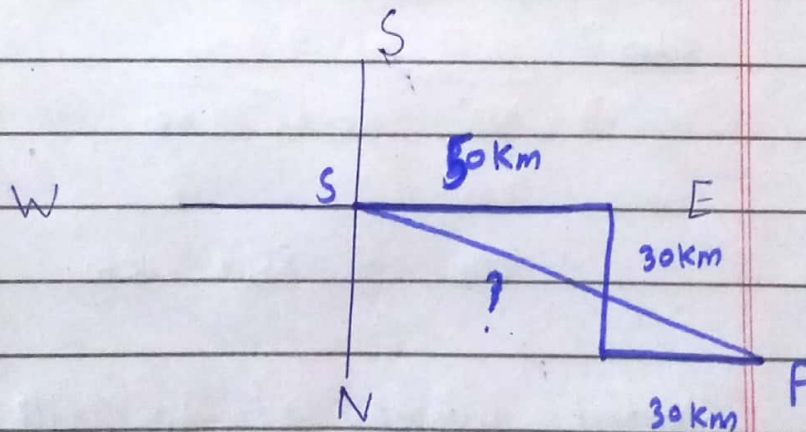
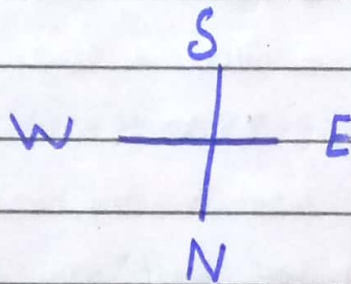
distance toward east = 50 km

distance after right turn = 30 km

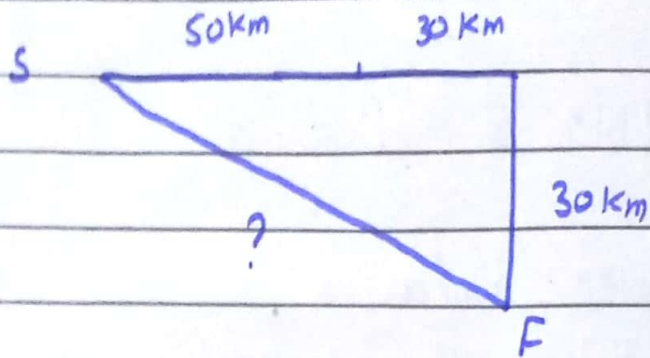
distance after left turn = 30 km

Shortest distance between cities "S" & "F" = ?

### Solution



Rearranging the above diagram  
to find shortest distance



By using Pythagorean theorem

$$\text{Hypotenuse}^2 = \text{base}^2 + \text{height}^2$$

$$\text{Hyp}^2 = 80^2 + 30^2$$
$$= 6400 + 900$$

$$\text{Hyp}^2 = 7300$$

Taking square root on both side

$$\sqrt{\text{Hyp}^2} = \sqrt{7300}$$

$$\text{Hyp} = 85.44 \text{ km}$$

Shortest distance between city  
S and F is **85.44 km**



## QNO 8 Part d

## Given data

Chocolates to ice-cream ratio = 5:8

number of chocolates = 30

Number of ice-cream cones = ?

## Solution :-

Let chocolates =  $x$

ice-cream =  $y$

Total Number =  $Z$

Now

$$5x + 8y = (x + y)$$

$$\text{Number of chocolates} = \frac{5}{13}$$

$$\begin{aligned} \text{Total ratio} &= 5 + 8 \\ &= 13 \end{aligned}$$

$$\text{Number of chocolates} = \frac{5}{13} \times \text{Total number}$$

$$(30) = \frac{5}{13} (Z)$$

$$30 \times 13 = 5Z$$

$$Z = \frac{30 \times 13}{5}$$

$$\begin{array}{r} 13 \\ \times 30 \\ \hline 78 \end{array}$$

$$Z = 6 \times 13$$

$$Z = 78$$

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$$\text{Number of ice-cream cones} = \frac{8}{13} \times \text{Total number}$$

$$= \frac{8}{13} \times 78$$

$$= \frac{8}{13} \times 78 = 6$$

$$= 8 \times 6$$

$$= 48$$

$$13 \overline{) 78}$$

Number of ice-cream cones = 48

### QNO 8 Part C

#### Given data

Pipe A take 3 hours to fill swimming pool

Pipe B take 6 hours to fill swimming pool

Pump A start at 9:00 am

Pump B start at 10:00 am

swimming pool fill at = ?

#### Solution

solve the question by LCM

Pump A factor = 1

Pump B factor = 1 x 2 x 3

$$\text{LCM} = 1 \times 3 \times 2$$

$$= 6 \text{ hours}$$



As pump A start at 9:00 Am  
Swimming pool be filled at 3:00Pm

## QNA 8 Part b

Answer:-

**IQ - Intelligence Quotient**

IQ, Short for intelligence quotient is a measure of a person reasoning ability. In short, it is supposed to gauge how well someone can use information and logic to answer questions or make predictions. IQ test begin to test assess this by measuring short- and long-term memory.

## Factors affecting IQ

### Genetic

Our genes do influence intelligence and IQ

### Environment factors

Education

Premature birth

Nutrition

Pollution

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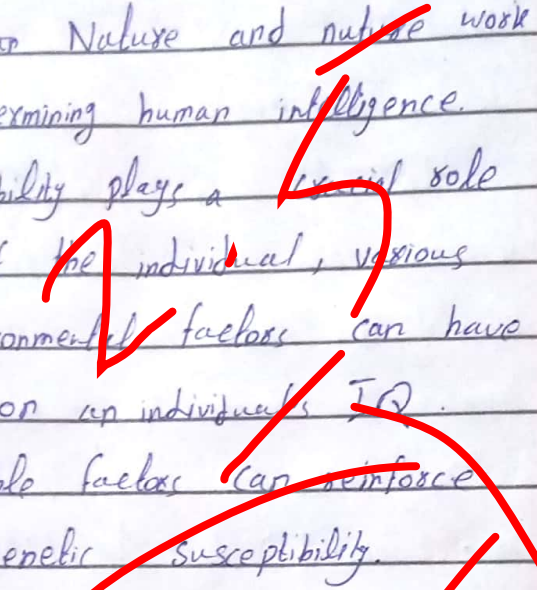
Drug

Alcohol abuse

Mental illnesses

Diseases

The ~~IQ~~ of an Nature and nurture work together in determining human intelligence. Genetic susceptibility plays a ~~crucial~~ role on the IQ of the individual, various modifiable environmental factors can have an influence on an individual's IQ. These modifiable factors can reinforce or weaken genetic susceptibility.





### Section I

## General Instructions

Q.No. 2 Part a

Answer:

Geo-stationary satellites

1. Give numbering to headings

2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.

3. Do not use table for comparison and contrast. Give small paragraphs with headings instead.

4. In maths section, explain the steps. Otherwise, you will lose marks.

5. At the end of maths question, do not forget to write the unit.

6. Draw figures where possible.

7. In series questions, do not just write the answer. Also write the reasoning.

8. Add diagrams in the general science section as well.

9. Start new question from fresh page.

Natural satellites	Artificial satellites
Earth	
Moon is natural satellite	These satellites require
Made up of natural material like rock, mineral etc	energy to fix their proper function which are provided by solar cells.

⇒ Earth

⇒ Moon is natural satellite

⇒ Made up of natural material like rock, mineral etc

These satellites require energy to fix their proper function which are provided by solar cells.



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- |  |  |
|--|--|
| ⇒ These have no light or heat itself but take from sun         | These satellites use for communication and weather forecast. |
| ⇒ These satellite cannot communicate to earth or other planet, | Made up of metal and electronic material                     |
| ⇒ These exist naturally  | Sputnik I was first artificial satellite                     |

### According to NASA

Jupiter have 57 confirmed moon and 23 provisional moon and these are almost 8 artificial satellites.

### QNO.2 Part b

Answer

Nibble

In computing and digital technology a nibble is four consecutive binary digits or half of an 8-bit byte. When referring to a byte, it is either the first four bits or the last four bits. That's why nibble is called as a half-byte



## CPU

CPU stand for central processing unit. It is also known as a processor of computer. CPU is a brain of the computer which contain thousand of microscopic transistors, which perform different functions.

## Mother board

The motherboard is the backbone that ties the computer's components together at one spot and allows them to talk to each other. Mother board connects different components of computer to perform their respective functions.

## RAM::

RAM stands for random access memory, RAM is a short term memory where data is stored for short time during the running of computer. These data is easily and fastest to be use by processor.

RAM remembers the recent and current operation data which computer is performing.

## ROM

ROM stands for Read Only Memory, is a type of computer storage containing non-volatile permanent data.

ROM is a long term memory which are store in hard drive with in a computer or like in USB, hard drive etc.

QNo.2 Part C

Answer

## Optical fiber

Optical fiber is a transmission of information as light pulses through a hollow glass tube or fiber.

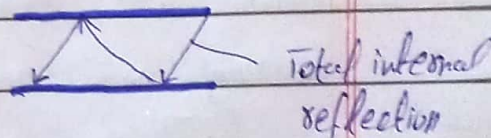
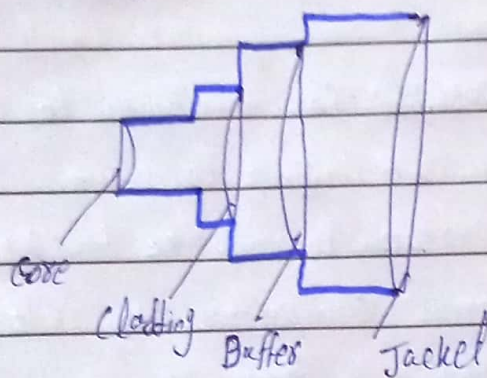
## Optical fiber working

In optical fiber tube information is pass through total internal reflection. Electronic circuit process the information.

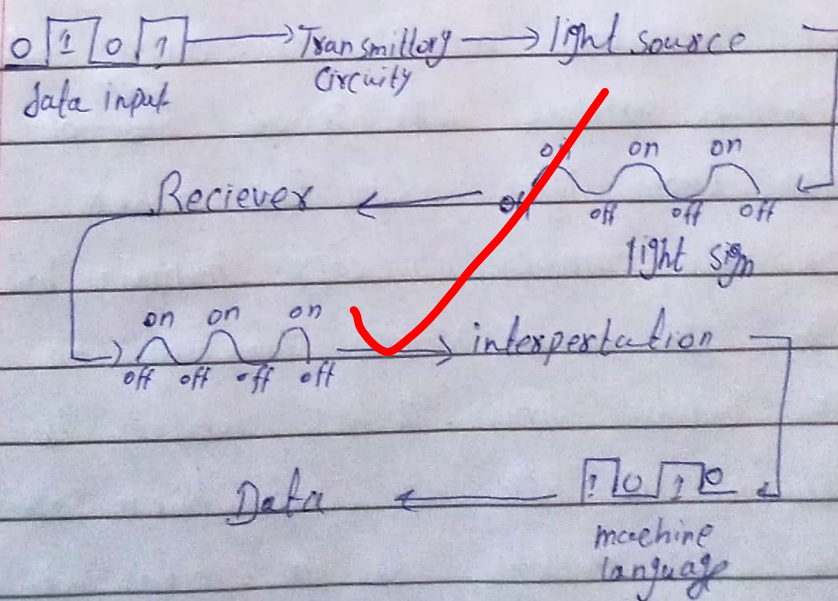


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and transmit to the fibre tube in the form of light impulses which are move in the tube through total internal reflection of light. The light impulses are received by reciever which again process by electronic circuitry and pass to display device as form of data



### WORKING



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QNO.2 Part d

Answer

## Artificial Intelligence

Artificial intelligence is study and engineering of intelligence machine capable of performing the same kind of functions that characterize human thoughts.

AI make it possible for machines to learn from experience, adjust to new inputs and perform human-like tasks from chess-playing computers to self driving cars, which rely heavily on deep learning and natural language processing.

There are two basic type of Artificial intelligence. One called symbolic Artificial intelligence <sup>based</sup> upon pure logic and the other type is connection copy human brain.

This type of AI perform function as like human brain. It has ability to perform in different situation on the their thinking and perception ability.