

Q No 7

PART D:

Two number are in ratio 3:2 find the number

ANSWER:-

let two number =  $3x$  and  $2x$   
is common ratio

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

Solve for "x"

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

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

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

$$7x = 14$$

$$x = \frac{14}{7}$$

$x = 2$ . put value of  $x$  in  $3x, 2x$

first number =  $3x \rightarrow 3 \times 2 = 6$

second number =  $2x \rightarrow 2 \times 2 = 4$

Therefore the two number are 6 and 4.

Sorry to say but worst paper ever I have checked  
You even don't bother to arrange the pages  
How can a teacher check it if your part 1 is one page 4, part 2 on page 26, part 3 on page 15.  
It wasted my 30 minutes

G



### Part C

A cricket team won 60% of the total matches it played -- during the year.

#### ANSWER:-

lets denote matches played =  $x$

$$\begin{aligned} \text{Team won} &= 60\% \times x \\ &= 0.6x \end{aligned}$$

$$\text{Matches lost} = 24$$

$$\text{Matches won} + \text{Matches lost} + \text{Match drawn} = x$$

$$x = 0.6x + 24 + 0$$

$$x = 0.6x + 24$$

Subtract "0.6" on both sides.

$$0.4x = 24$$

$$x = \frac{24}{0.4}$$

$$x = 60$$

$$\text{Total match played} = 60.$$



Part b

If a rectangle has a length that is three more times ----- dimensions of rectangle.

ANSWER :-

width of rectangle =  $w$

length of rectangle =  $l$ .

According to question :-

$$l = 2w + 3 \rightarrow (i)$$

Perimeter = 20 inches.

Perimeter =  $2l + 2w$  - put values

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

Solve for  $w$ .

$$20 = 4w + 6 + 2w$$

$$20 = 6w + 6$$

$$14 = 6w \rightarrow w = \frac{14}{6}$$

$$w = \frac{7}{3} \text{ inches}$$

put value in (i)

$$l = 2\left(\frac{7}{3}\right) + 3$$

$$l = \frac{14}{3} + 3$$

$$\rightarrow l = \frac{14}{3} + \frac{9}{3}$$

$$l = \frac{23}{3} \text{ inches}$$

~~width =  $\frac{7}{3}$  inches~~

~~length =  $\frac{23}{3}$  inches~~



## QUESTION 6:-

### PART a. &

A farmer cuts 300ft. fence into two piece of different size - - - - How long are two pieces.

### ANSWER :-

let's assume:

length of shorter piece =  $x$

length of longer piece =  $4x$ .

sum of length is equal to original length of fence.

$$x + 4x = 300\text{ft.}$$

$$5x = 300$$

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

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

length of shorter piece = 60ft.

length of longer piece =  $4x$

$$= 4 \times 60\text{ft}$$

$$= 240\text{ft}$$

length of smaller = 60ft

length of longer = 240ft

Calculation:-

Since there are 9 values median is 5<sup>th</sup> value when arranged in order.

$$\text{Median} = 16$$

∴ Mode:-

Defination

Mode is the value appears most frequent in data set

Calculation:-

The mode is 15 because it appears frequently

∴ Range:-

Defination:-

Range is the difference between the maximum and minimum values in data set.

Calculation

$$\text{Range} = \text{Max} - \text{min}$$

$$= 19 - 15$$

$$\text{Range} = 4$$



## Part d

There are 9 students in a group having ages 15, 16, 16, 16, 17, 17, 18, 19. calculate

### ANSWER:-

-: Mean :-

Defination :-

Mean is sum of all values divided by total number of values.

Calculation :-

$$= \frac{\text{Sum of values}}{\text{No. of values}}$$

$$= \frac{15+16+16+16+17+17+18+19}{9}$$

$$= \frac{159}{9}$$

$$\text{Mean} = 17.7$$

-: Median :-

Defination :-

It is the middle value when the data is arranged in an order.

If values are even, Median is average of two middle number.

Calculation:-

Since there are 9 values median is 5<sup>th</sup> value when arranged in order.

$$\text{Median} = 16$$

∴ Mode:-

Defination

Mode is the value appears most frequent in data set

Calculation:-

The mode is 16 because it appears frequently

∴ Range:-

Defination:-

Range is the difference between the maximum and minimum values in data set.

Calculation

$$\begin{aligned} \text{Range} &= \text{Max} - \text{min} \\ &= 19 - 15 \end{aligned}$$

$$\text{Range} = 4$$



$$\begin{aligned} \text{base} &= \sqrt{15^2 - 12^2} \\ &= \sqrt{225 - 144} \\ &= \sqrt{81} \end{aligned}$$

$$\text{base} = 9 \text{ cm.}$$

$$\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$$

$$= \frac{1}{2} \times 9 \text{ cm} \times 12 \text{ cm}$$

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

$$\text{Perimeter} \\ \text{Perpendicular} = \text{Base} + \text{height} + \text{Perpendicular}$$

$$= 9 + 12 + 15$$

$$= 36 \text{ cm.}$$

$$\text{Area of square} = 2.$$

As all sides of square are equal

$$\text{Area} = L \times W$$

$$= 9 \text{ cm} \times 9 \text{ cm}$$

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

$$\text{Perimeter} \\ \text{Perpendicular of sq} = 2$$

$$\text{Perimeter} = 4 \times L$$

$$= 4 \times 9 \text{ cm}$$

$$= 36 \text{ cm.}$$

$$\text{Total area of shape} = \text{Area of sq}_1 + \text{Area of triangle} + \text{Area of sq}_2$$

$$= 144 \text{ cm}^2 + 54 \text{ cm}^2 + 81 \text{ cm}^2$$

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

$$\text{Perimeter of total shape} = \text{Perimeter of sq}_1 + \text{Tri} + \text{sq}_2$$

$$= 46 \text{ cm} + 36 \text{ cm} + 36 \text{ cm}$$

$$= 118 \text{ cm.}$$

120



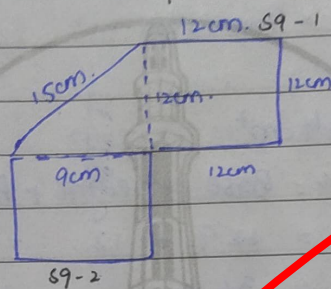


## ∴ PART C :-

calculate the total area and perimeter.

### ANSWER:-

∴ Given shape:-



Area of square 1 =

$$\begin{aligned} \text{Area} &= \text{length} \times \text{w} \\ &= 12 \text{ cm} \times 12 \text{ cm} \end{aligned}$$

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

Perimeter of square 1 =

$$\begin{aligned} \text{Perimeter} &= 4 \times L \\ &= 4 \times 12 \text{ cm} \end{aligned}$$

$$\text{Perimeter} = 48 \text{ cm}.$$

Area of triangle:

Area of triangle is  $= \frac{1}{2} \times \text{base} \times \text{height}$ .

Solve for base

According to Pythagoras theorem.

$$(\text{hyp})^2 = (\text{Base})^2 + (\text{Prep})^2$$

$$(\text{Base})^2 = (\text{hyp})^2 - (\text{Prep})^2$$

$$\text{Base} = \sqrt{\text{hyp}^2 - \text{Prep}^2}$$

(iii) A perfect square.

Perfect square in sample = 1, 4, 9

$$\text{Probability} = \frac{3}{12} = \frac{1}{4}$$

$$= \frac{1}{4}$$

Answer.

(iv) a negative number.  
negative number in sample = 0.

$$\text{Probability} = \frac{0}{12} = 0$$

$$= 0$$

Answer.

(v) A number less than 13  
number less than 13 in sample = 1, 2, 3, 4, 5, ..., 12.

$$\text{Probability} = \frac{12}{12} = 1$$

$$= 1$$

Answer.

19 S 9 19 20 5 18  
S I S T E R ←←

17 4 19 18 8 18  
A D S R H R

→

Answer = ODSRHR

## PART b &

A card is drawn from a random box containing 12 cards numbered 1, 2, 3, 4, 5, ..., 12. Find probability of

ANSWER:-

(i) - "8"

Sample = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12.

Probability of 8 =  $\frac{1}{12}$

(ii) An even number

Even numbers in Sample = 2, 4, 6, 8, 10, 12

Probability =  $\frac{6}{12} = \frac{1}{2}$

## SECTION - II

### QUESTION 8

#### Part a

If in a certain language, BROTHER is written as GDGSNQA, then in the same language, SISTER would be written as ---?

#### ANSWER:

2	16	15	20	6	5	18
B	R	O	T	H	E	R
→						←
17	4	19	14	17	1	
Q	D	G	S	N	Q	A
→						

As we observe the pattern we come to know that the value of the most right side number is reduced and the alphabet with same value is on most left hand side and so on. So SISTER will be written as follows:



Partial solar eclipse  
when moon and earth do not align in a perfectly straight line. Moon covers only disc.

1. Partial lunar eclipse when the part of moon passes through umbra.

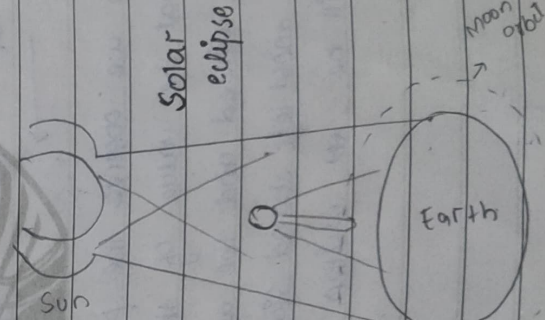
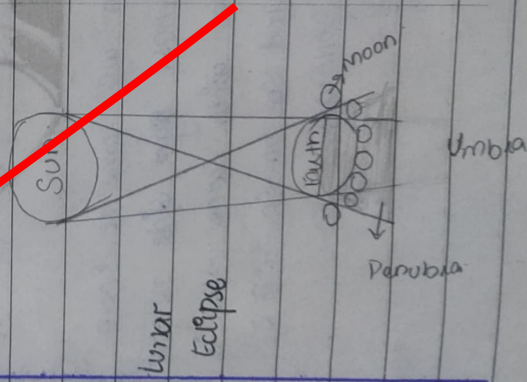
It is called partial as whole area is not covered.

3. Annular solar Eclipse:- when moon appears smaller than the sun as it passes vertically across the solar disk or bring ring. Sun remain visible.

3. Total lunar eclipse when the entire moon passes through umbra of Earth's shadow. Moon is totally obscured.

Diagrams:-

Diagrams:-



Slight change in colour of moon

### Explanation:-

Solar eclipse lasts for few minutes. It happens once every 18 months.

Can't be seen.

Never look directly by eyes.

Dangerous

### Regions:-

2 Regions

1- Umbra

2- Penumbra

### Types:-

It has 3 types

1- Total solar eclipse

Moon completely covers the Sun

The area it covers is

Usually 100 miles (160km)

wide and 10000 miles (16400 km) long.

Lunar eclipse last for few hours. At least 2 partial lunar eclipse happen every year.

It can be seen directly by eyes. Not dangerous.

2 Regions

1- Umbra

2- Penumbra

It has 3 types

1- Penumbra solar lunar eclipse

when the moon

only passes through the Penumbra

of earths shadow

Rarely visible

from earth.

Slight change

in colour of moon

### Types of semi-conduction

N type  
created when  
the dopant is  
an element that  
has five electron  
in its valance  
shell.

P-N Junction  
when P-type  
and N-type  
material are  
placed in  
contact with  
each other

### Part D

what is  
lunar eclipse?

### ANSWER:

-: Eclipse :-

An eclipse  
takes place when one  
such as moon or planet  
of other heavenly body  
moves into the shadow

### Types of eclipse on Earth:

Solar Eclipse

This happen when  
moon comes  
between earth and  
sun.

-: Deposition :-

Some time earth  
move between sun  
and moon.

Lunar Eclipse

## Part C8

write a short note on semi-conductors

### Answer :-

#### Definition :-

As the name implies semi-conductor is a material that conducts current but partly.

#### Explanation :-

The semi conductor is used extensively in electronic circuits. The conductivity of a semi conductor is some where between that of an insulator, which has almost no conductivity and a semi conductor which has almost full conductivity. Most semi conductors are crystals made of certain material.

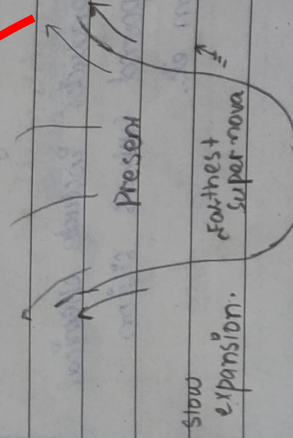
The common semi conductor include chemical elements and compound such as silicon, germanium, selenium etc.



It was hotter and denser than anything we can imagine.

Then it suddenly exploded the universe that we know was born. Time, space and matter all began with Big bang theory. In a single or fraction of second the universe grew from smaller than a single atom to bigger than a universe galaxy. And it kept growing at a fantastic rate and is still growing.

As the universe expanded and cooled energy changed into particles of matter and anti matter. The two most opposite particles destroyed each other. But some survived. More stable particles protons and neutrons started to form when universe was one second old. Over the next 3 minutes temperature dropped to 3 billion degree  $^{\circ}$ . It was now cool enough for proton and neutron to come close and form hydrogen and helium nuclei.



Expanding universe.



## QUESTION 3:

### Part b:-

what is the origin of universe, how age of universe can be calculated?

### ANSWER:-

Origin of universe is bit like an old question: what come first, chicken or egg? In other words what agency created the universe? and what created the agency or the agency and universe existed forever and were never created.

(Stephen Hawking's)

### Big Bang theory:-

Most Astronomers believe that the universe began in a big bang around 13.7 billion years ago. At that time the entire universe was in a bubble that was thousands of times smaller than a pin head and was called a singularity.



## Part a

Pakistan suffered a loss of \$40bn due to heavy floods of 2022, in this context climate finance is the central question for developing countries. Discuss in light of COP-28 going to start in UAE.

## ANSWERS

Pakistan's vulnerability to climate change disaster economic consequences that are faced by countries under development.

The upcoming COP-28 presents an opportunity to address the urgent need for climate change finance for developing countries.

- 1- Specifically COP-28 should focus on:
- 2- Scaling up climate finance commitments.
- 3- Enhancing accessibility of climate finance.
- 4- Ensuring equitable distribution of climate finance.
- 5- Addressing the need of developing countries in adaptation and mitigation.



Cerebrum

It is divided into four cortex.

- 1- Frontal lobe
- 2- Parietal lobe
- 3- occipital lobe
- 4- temporal lobe.

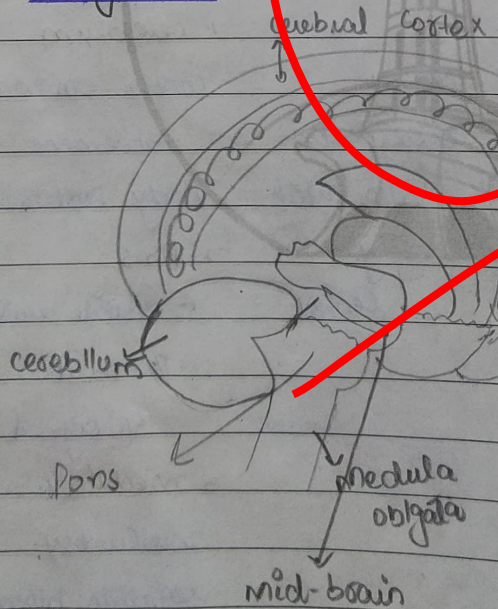
Associated with planning reasoning speech

Associated with sensation recognition

Associated with visual processing

Associated with recognition of auditory stimuli

Diagram:





## Part D

Draw a flow chart of different parts of brain

The brain is made up of 3 parts

Forebrain

Mid brain

hind brain

further they are divided as

consist of

cerebrum,

thalamus,

hypothalamus

1- Thalamus

Receive msg from  
5 sense and send  
to limbic system

2- Hypothalamus

control pulse, thirst  
appetite, sleep

3- Amygdala

control fear anger

4- Hippocampus

control long term  
memory

Tectum,

Tegmentum

functions

Master

coordinator

also called

relay

center

cerebellum,

Pons,

medulla

1- cerebellum

control balance  
movement

body posture

2- Pons

1- regulate breathe

2- Transmission

of signal

3- Medulla

involuntary

regulate blood

pressure



Disorders

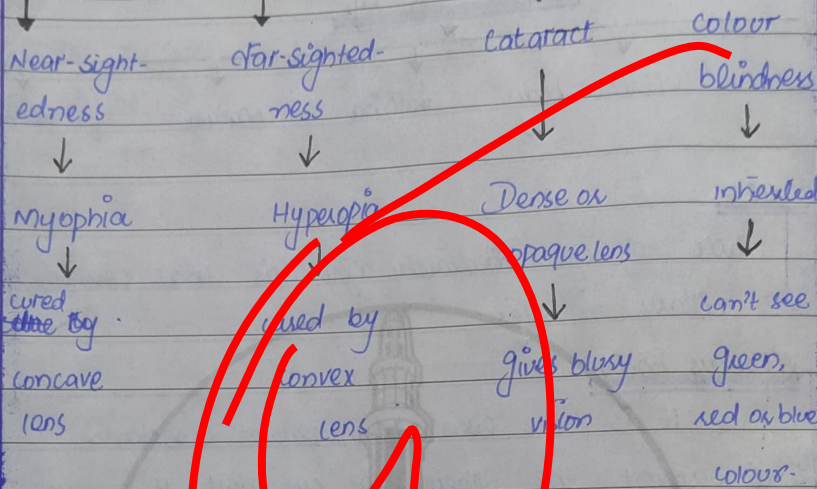
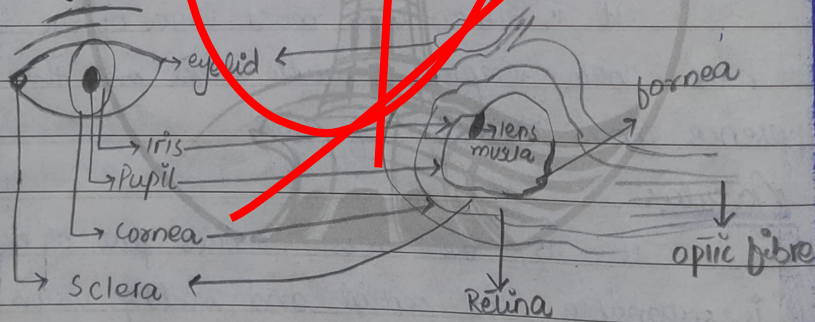
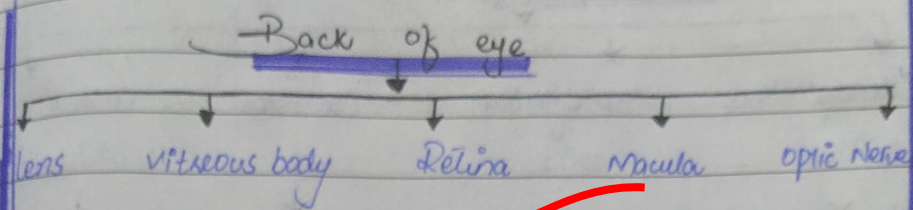


Diagram :-



lens:-

Part of eye immediately after iris that controlled by the ciliary muscles.

vitreous body:-

It is gel like transparent substance that support the sphere of eye ball. It shows intravascular metabolism.

Retina:-

It is the inner most layer of eye. It have photo receptors which react on the presence and intensity of light.

Macula:-

It is the most sensitive part of eye. It is responsible for central and reading vision.

optic nerve:-

It contain nerve fibre which takes information from retina and transfer to brain.

Rods → It helps in perceiving colour and details

Cones → <sup>Helps in</sup> Night vision, Peripheral or side vision



The dark hole is altered in shape by iris affected by the amount of light that let into eye.

If light is:

1- low or dark outside → large

2- High or day outside → tiny

Sclera:-

white part of eye. which is visible when we see in mirror.

The part of eye which serves as protective outer layer.

It is made up of Elastic and collagen

Eye Lid:-

It helps hold eye in its place.

It is the first protective layer of eye.

Conjunctiva:-

Inner layer of eye

It covers the sclera and provide mucus, tears for eye lubrication and bacterial infection prevention

It does not cover cornea.

Back of the eye:-

If we divide parts of eye on the basis of location we also get five parts which are not visible but serves important function





Part C:

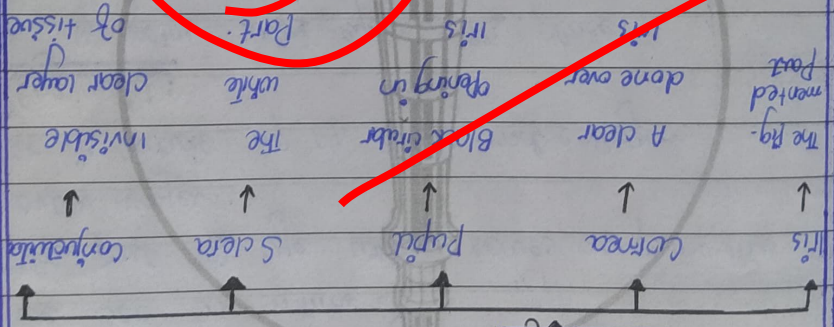
Explain the structure of eye.

ANSWERS:

Human Eye:-

1 inch (2.5 cm) in diameter.

Parts of Eye



Iris:-

It is coloured part of eye. It is important because it control size of pupil.

Cornea:-

clear covering over iris and pupil (refractive power)

This is the reason that contacts are dome shaped because they sit over iris.

Pupil:-

Pupil is the dark circle inside the center of the eye.



Water-soluble

Includes:-

A, D, E and K

Fat-soluble

vitamin C and B complex

8 vitamins

B1, B2, B3, B5, B6, B7, B9, B12

usually absorbs with the help of food containing salt.

Stored:-

Excess amount of fat soluble are stored in body fat, liver, kidney

these can not be stored and leave the body through urine

Need:-

They are not consumed every day to meet the body need.

Foods containing water-soluble must be eaten daily to meet body need.

Diets containing vitamin:-

vitamin:-

- A → Green vegetables
- D → Dairy products
- E → leafy vegetables
- K → synthesized by intestinal bacteria

vitamin:-

- C → citrus fruits
- B1 → organ meat
- B2 → eggs, grains
- B3 → yeast.
- B5 → milk products
- B6 → vegetables.



# GENERAL KNOWLEDGE - I

## (General Science And Ability)

### PART II

#### SECTION-1

#### Question NO 2:-

#### Part b:-

Distinguish water-soluble and fat soluble vitamins.  
Give examples of diet containing different vitamins?

#### ANSWER:-

##### :- Vitamin :-

Vitamins is any of the organic compound that a body require in small amount to maintain health and function properly.

##### Types of vitamins

vitamins are divided into two types.

Water-soluble

Fat-soluble