

Q. No. 6

(a)

Given: Rate of depreciation/year = 10%

Present value = <sup>Rs. 7</sup>8748.

To find:- Price of machine three years ago

Solution :-  $\frac{10}{100} \times 8748 = 874.8$

As value depreciates every year, it means value would be more in previous

year, so,  $8748 + 874.8 = \boxed{\text{Rs. } 9622.8}$

Before two years, the value of machine will be:-

$$\frac{10}{100} \times 9622.8 = 962.28 \Rightarrow \textcircled{1}$$

Adding  $\textcircled{1}$  in 9622.8

$$962.28 + 9622.8 = \boxed{\text{Rs. } 10585.08}$$

Before three years, the value of machine will be:

$$\frac{10}{100} \times 10585.08 = 1058.508 \Rightarrow \textcircled{2}$$

Adding  $\textcircled{2}$  in 2<sup>nd</sup> year value Rs. 10585.08

$$10585.08 + 1058.508 = \boxed{\text{Rs. } 11643.588}$$

Price of machine three years ago.

Date: \_\_\_\_\_

Q. No. 6 (b).

Given: Father is ~~four~~ <sup>four</sup> times age of ~~5th~~ <sup>daughter</sup>

After five years father's age is three times of daughter's age.

Father's age To find:

Father's age compared to his daughter after 5 years.

Solution:

Daughter's age =  $x$ .  $\rightarrow$  at Present.

Father's age at present =  $4x$ .

Daughter's age after 5 years =  $x+5$ .

Father's age after 5 years =  $3(x+5)$ .

Daughter's age after further five years

$$= (x+5)+5 = x+10.$$

Father's age after 'further' five years = ??

Making equations.

$$x+5 = 3x+15 \quad \text{--- (1)}$$

$$x+0 = 4x+0 \quad \text{--- (2)}$$

Changing signs of equation (2).

$$x+5 = 3x+15$$

$$-x+0 = -4x+0$$

$$5 = -x+15 \Rightarrow \boxed{x = 15-5 = 10}$$

After further 5 years:

$$\boxed{x+10 = 10+10 = 20} \text{ Daughter's age}$$

Date:

Father's age after further 5 years.

$$(3x + 15) + 5 = (3(10) + 15) + 5.$$

$$= (30 + 15) + 5 = 50 \Rightarrow \text{Father's age}$$

Thus, after further five years, father's age will be 2.5 times age of daughter.

Q.6.(c).

Given: Diameter of football = 12 cm.

To find: volume of football.

Formula to find volume:

$$V = 4\pi r^3, \text{ where } r = \text{radius.}$$

Solution:  $r = \frac{\text{diameter}(d)}{2}$

$$r = \frac{(12)}{2} = 6 \text{ cm} \quad \text{--- (1)}$$

Inserting (1) in formula.

$$V = 4 \cdot (3.14) \cdot (6)^3 = 4(3.14)(216).$$

$$V = 12.56 \times 216 = 2712.96.$$

$$\text{Volume} = 2712.96 \text{ cm}^3$$

Q.7.(a).

Given: Average of 7 consecutive numbers = 20.

To find: Largest number.

Formula of average:  $\frac{\text{sum of observations}}{\text{Number of observations}}$

Solution:

Lets the first number be 'x'

34  
4  
1256  
216  
1712.96  
1256  
1216  
17536  
1256x  
512xx  
2712.96

36  
216

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consecutive numbers will be  $x, x+1,$

$x+2, x+3, x+4, x+5, x+6.$

Average of numbers =  $\frac{x + (x+1) + (x+2) + (x+3)$

$+ (x+4) + (x+5) + (x+6)$

$7.$

$$20 = \frac{7x + 21}{7}$$

$$20 \times 7 = 7x + 21 \Rightarrow 7x + 21 = 140.$$

$$7x + 21 = 140 - 21 = 119.$$

$$x = \frac{119}{7} = 17, \text{ Thus first number is } 17.$$

In this largest number, will  $x+6.$

$$x+6 = 17+6 = 23.$$

Q. 7. (b).

According to given statement.

C is the nephew of father of A,

which means that C is cousin of A.

Second, statement F indicates that D is

cousin of A but not brother of C.

Thus, if A and C are cousins

and D is not brother of C, it

means that C and D are also

cousins

## Q.No.7.(c).

4. i) Between 4 and 18, there is difference of 14. After missing statement, there is difference of 80 between 100 and 180.

8 Subsequently, 294 is obtained by adding (80 + 34) to previous term. Similarly, 448

7 is obtained by adding (44 + 154) to

14x5  
=80. previous term. As, there is difference of

10 in all terms, it means that ~~2nd~~ 3rd

missing will be obtained by adding (14 + 24) to 18, which will be 56.

294  
180  
114

iii).

From 11 to 17, there is gap of

6. From 17 to 39, there is gap

of 22. Onward, there is square of 6

7. which added to 10 and further added

22  
27. to 3

iv)

Between 13 and 24, there is

15  
8 difference of 11. Between 24 and

46 there is difference of 22 obtained

by multiplying 11 with 2 and addition

to first term. If we take ~~multi~~ product

2 and  $2^2 = 4$ . <sup>add in</sup> to previous term,  
90 is obtained. In same way,  
178 is obtained by multiplying  
44 with 2 and adding it to 90.  
Simultaneously, next term will be  
obtained by multiplying 88 with 2  
and adding to 178. Thus  $178 + 176$   
will be 354.

(v)

4 is square of 2. After missing  
term 144 is square of 12, 400 is  
square of 20 (adding 12+8), 900 is  
square of 30 (adding 20+10), 1764 is  
square of 42 (adding 30+12). Thus  
~~the~~ missing term will be square  
of 6 which is 36 (addition of 2+4),  
then  $6+6$  will be 12 in next term).

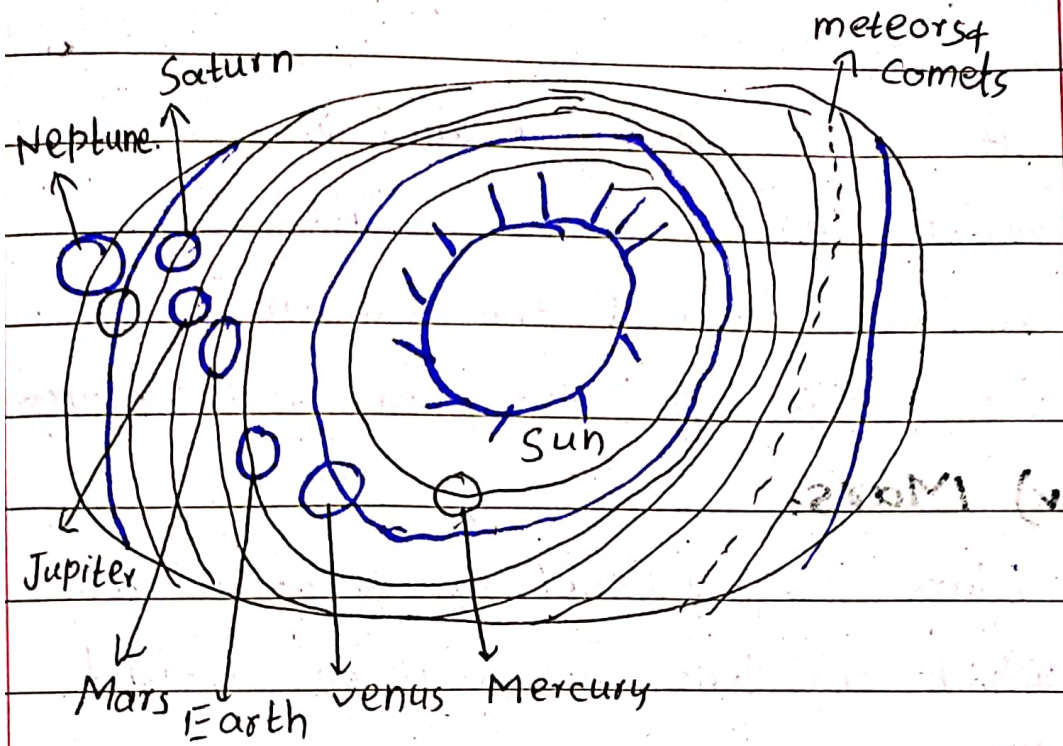
Q. No: 4

$1^2 = 1$

Solar system:-

Solar system is 'a system of  
sun and planets alongwith  
meteors, which revolve around  
the sun due to gravity.

# Diagram.



## i) Sun:

It is the star, which gives light, heat and gravitation to hold the planets together.

## ii) Mercury:

It is nearest planet to the sun. Due to gravity of sun, it moves fast and covers its orbit in short time.

## iii) Venus:

It is closest planet to earth. It is also called as morning star. It is the hottest and brightest.

planet of solar system.

iv) Earth:

It is the only planet in solar system, which sustains life. It revolves around the sun and covers its orbit in 365 days and 6 hours.

v) Mars:

Mars is planet of solar system, which revolves clock-wise around the sun.

vi) ~~Saturn~~ Jupiter:

This planet has gas circles around it. It is heaviest planet of solar system.

vii) Saturn:

It is the planet of solar system, which has 200+ moons.

viii) Neptune:

It is farthest planet of solar system. Being farthest, it is also coldest planet.

ix) Meteors / comets:

These are fragmented rocks of planet between Jupiter and Saturn, which revolves



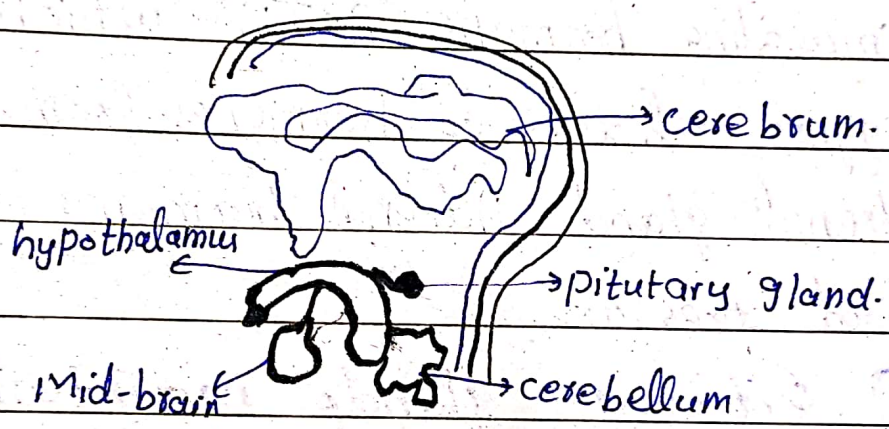
under gravity of sun.

Q. No. 4 (b).

### Pituitary gland:

This is ~~endocrine~~<sup>endocrine</sup> gland near hypothalamus in the brain, which releases wide variety of hormones.

### Diagram:



### Parts of pituitary gland:

Anterior pituitary gland.

Posterior pituitary gland.

### Importance of pituitary gland:

#### (i) Helps body in metabolism:

Anterior pituitary releases Thyroid stimulating hormone (TSH), which acts upon thyroid glands to release thyroxin, which is further involved in metabolism.

(ii) It helps in growth of body:

Anterior pituitary releases somatotrophic, which is involved in growth of body.

(iii) Pituitary gland is involved in maintaining blood pressure.

Pituitary gland releases adrenocortico stimulating hormone (ACTH), which triggers release of hormones from adrenal glands. Adrenal hormones maintain blood pressure.

(iv) Pituitary glands maintains reproductive system:

Pituitary gland release follicle stimulating hormone (FSH) and luteinizing hormone (LH), which are involved in reproduction.

~~Q No. 4 (c).~~

## Q.No.4 (c)

**RAM****ROM.**

- |      |  |   |
|------|--|---|
| i)   | It is called "Random access memory."               | It is called "Read only memory"                         |
| ii)  | It is volatile memory                              | It is non-volatile memory.                              |
| iii) | It temporarily stores data, in computer.           | It permanently stores data.                             |
| iv)  | After computer is shutdown, this memory is erased. | After computer is shutdown, this memory remains intact. |
| v)   | It does not require software to remove data.       | It requires software to remove data.                    |

Definations(i) Nibble:-

It is unit of measuring data.  
4 bytes of data is equal to 1 Nibble.

(ii) USB:-

It is known as Universal serial

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bus. It is secondary memory that interprets data from computer and saves it in the form of flash drive.

### (iii) Mother board:

It is the series of wires, which are held together to form memory and processor of computer. It is also known as integrated circuits.

### Q. 7. (d).

#### What is COP-29??

It is the annual conference of all countries to discuss and resolve the issue of climate change.

Its latest edition was held in November, 2024 in Baku, Azerbaijan.

#### Target :-

COP-29 targeted to limit the release of temperature upto  $1.5^{\circ}\text{C}$ .

(i) It is an unrealistic target.

This target has to be achieved

Date: \_\_\_\_\_

M T W T F S

upto 2030. However, there are still 900 billion tonnes of emissions. (Intergovernmental panel on climate change (IPCC)).

(ii) climate finance is not substantial to meet this target:

In COP-29, \$300 billion climate finance was promised. However, \$1.3 Trillions are actually needed by developing countries to reduce their emission.

(iii) Forest cover is low to sink released carbon:

According to International Union of Conservation of Nature (IUCN),

30 million hectares of land is ~~degraded~~ <sup>deforested</sup>. This enormous deforestation

is a significant hurdle to maintain  $1.5^{\circ}\text{C}$  of temperature.