

# (Section B)

day / date:

## Question # 06 (a)

### Data

- i- Value of washing machine decreases every year at the rate  $r = 10\%$
- ii- Present value  $y = 8748$  Rs.

### Required

- i- Value of the washing machine three years ago = ??

### Solution

Let the value of washing machine three years ago be ' $x$ '

- (A)  $[x - 10\%(x)] \rightarrow$  in the first year
- (B)  $[x - 10\%(x) - 10\%(x)] \rightarrow$  in the second year
- (C)  $[x - 10\%(x) - 10\%(x) - 10\%(x)] \rightarrow$  in the third year

Using eq (C) for three years' ago value,

$$x - 10\%(x) - 10\%(x) - 10\%(x)$$

$$\Rightarrow x - 3 [10\%(x)]$$

$$\Rightarrow x - 3 \left[ \frac{10}{100} (x) \right]$$

$$\Rightarrow x - \frac{3x}{10}$$

$$\Rightarrow \frac{10x - 3x}{10}$$

$$\Rightarrow \frac{7x}{10}$$





So,

$$\frac{7x}{10} = 8748$$

$$\Rightarrow 7x = 8748 (10)$$

$$\Rightarrow x = \frac{8748 (10)}{7}$$

$$\Rightarrow x = 1249.7 (10)$$

$$\Rightarrow x = 12497.0 \text{ Rs.}$$

**Result:**

The original value three years ago was 12497.0 Rs.

## Question # 06(b)

### Data

- i- A father is four times the age of his daughter
- ii- After 5-years, he will be three times the age of his daughter
- iii After further five years, what times his age will be of his daughter (Required)



## Solution

Let father's age be  $x$

Let daughter's age be  $y$

From first statement,

$$x = 4y \rightarrow (1)$$

From the second statement,

$$(x + 5) = 3(y + 5) \rightarrow (2)$$

from using eq (1),

$$4y + 5 = 3(y + 5)$$

$$\Rightarrow 4y + 5 = 3y + 15$$

$$\Rightarrow 4y - 3y = 15 - 5$$

$$\Rightarrow \boxed{y = 10} \quad \text{Daughter's age}$$

put it in (1)

$$x = 4(10)$$

$$\boxed{x = 40} \quad \text{Father's age}$$

Using third statement, i.e., after 10-years

$$40 + 10 = 50 \text{ years (Age of father)}$$

$$10 + 10 = 20 \text{ years (Age of daughter)}$$



$$\frac{\text{Father's age}}{\text{Daughter's age}} = \frac{50}{20}$$

$$= 2.5$$

Result

So, after further five years, father's age will be 2.5 times the age of his daughter

Question # 06(c)

Date

$$\begin{aligned} \text{Diameter of football} &= 12\text{cm} = d \\ \text{Radius} &= \frac{d}{2} = \frac{12}{2} = 6\text{cm} \end{aligned}$$

Required

Volume of the football = ??

Formula

$$V = \frac{4}{3} \pi r^3$$

where,

$r \rightarrow$  radius of sphere



## Solution

$$\frac{4}{3} \pi r^3$$

$$\Rightarrow \frac{4}{3} \cdot \left(\frac{22}{7}\right) (6)^3$$

$$\Rightarrow \frac{4}{3} \cdot (3.14) (216)$$

$$\Rightarrow \frac{4}{3} (678.24)$$

$$\Rightarrow (1.33)(678.24)$$

$$\Rightarrow \underline{902.066 \text{ cm}^3}$$

678.2

1.33 24

$$\begin{array}{r} 1 \overline{) 20346} \\ 20346 \times \\ \hline 6782 \times \times \\ \hline 902006 \end{array}$$

6782 x x

902.006

## Result

902.066 cm<sup>3</sup> volume of the football



# Question (7a)

day / date:

Data

Average of seven consecutive = 20

Required

Find the largest number = ??

Solution

Let seven consecutive numbers be

$$x, x+1, x+2, x+3, x+4, x+5, x+6$$

So, according to given data,

$$\frac{x+x+1+x+2+x+3+x+4+x+5+x+6}{7} = 20$$

$$\Rightarrow x+x+1+x+2+x+3+x+4+x+5+x+6 = 20 \times 7$$

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

$$\Rightarrow 7x + 21 = 140$$

$$\Rightarrow 7x = 140 - 21$$

$$\Rightarrow 7x = 119$$

$$\Rightarrow x = \frac{119}{7}$$

The largest number is  $x+6$

$$\text{So, } \frac{119}{7} + 6$$



$$\frac{119}{7} + 6$$

$$= \frac{119 + 42}{7}$$

$$= \frac{161}{7}$$

$$= \boxed{23}$$

Result

The largest number value is  $\boxed{23}$   
 thus

## Question 7 (b)

Data

C is nephew of B's father

D is A's cousin

D is not C's brother

Required

Relation between D and C

Solution

B's father is uncle of C

A and are cousins

D is not the brother of C



day / date:

[ either D is C's sister  
or there is no relation between them ]

Result

Relation cannot be determined as A's  
relation to B and C are not mentioned

Question # 7 (d)



# Section (A)

day / date:

## Question # 04(a)

# Solar System

### i- Definition

The Solar System is part of the Milky Way Galaxy. It is a system of gravitationally bound planets and other celestial bodies (like moons) to the Sun.

### ii- Formation

The Solar System was formed around 4.6 billion years ago. When the universe came into existence from a point of singularity, multiple galaxies were formed. Each galaxy has various solar systems.

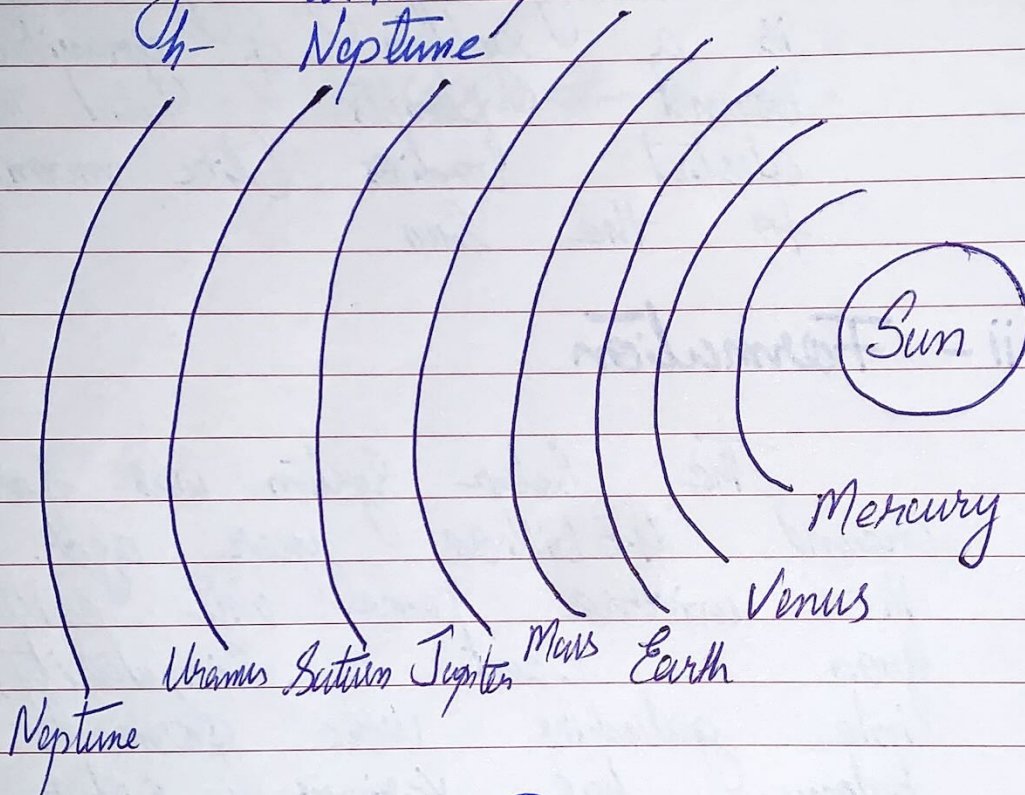
### iii- Our Solar System

'Our' Solar System contains a 'starred-body' called the Sun at the center around which it revolves eight planets, satellites of those planets, asteroids etc. But mainly



the solar system has the following planets:

- a- Mercury
- b- Venus
- c- Earth
- d- Mars
- e- Jupiter
- f- Saturn
- g- Uranus
- h- Neptune



#### iv- Types of Planets

- a- Rocky and Smaller:
  - Mercury
  - Venus
  - Earth

- b- Large and Composed of Gas:



- a - Jupiter
- b - Saturn
- c - Uranus
- d - Neptune

## V- About Planets

Each planet revolves around its own orbit around the sun. They are attached through the gravitational force to the sun. They also have a spin motion i.e., on their own axis.

## Question # 04 (b)

### Pituitary Gland

#### i- Definition of Gland

"A group of specialized cells that secrete hormones"

There are two types of glands in human body:

- i- Endocrine gland (Ductless gland)
- ii- Exocrine gland



## ii- Pituitary Gland

Pituitary gland is endocrine (ductless) gland i.e., the hormones released get absorbed in the blood. And the blood ensures the hormones reach their targets.

## iii- It's Divided into Three Lobes

Pituitary gland also called the master gland because it controls the thyroid gland and kidney. Pituitary gland is located in Hypothalamus.

### a- Anterior Lobe

\* It secretes Somatotrophin hormone (STH). STH is called growth hormone. In young age more STH is released.

If more than normal is secreted, leads to gigantism. And if less than required is released, leads to dwarfism.

\* Thyroid Stimulating Hormone is secreted by Thyroid Gland only when pituitary gland stimulates.



\* Adrenocortico Tropic Hormone (ATH) by Adrenal Gland only when pituitary gland stimulates it

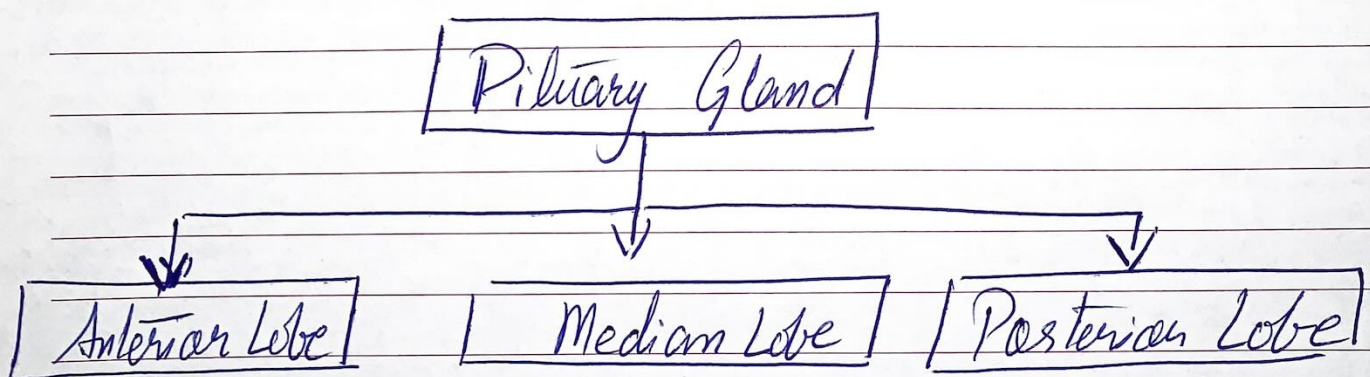
\* Gonadotrophin Hormone (GH) also stimulated by pituitary gland. GH is responsible in the reproductive system

## b- Median Lobe

\* Only releases skin-related hormone called Melanophore Stimulating Hormone

## c- Posterior Lobe

\* Does not secrete any hormone, but only responsible to store certain hormone; it's the storehouse



\* Somatotrophin  
 \* Thyroid Stimulating  
 \* Adrenocortico  
 \* ~~Anterior~~ Gonadotrophin

\* Melanophore

\* Stores hormones