

(Section - B)

Q. No. 6

(a)

Present value of washing machine is = Rs. 8748

Decrease in the price per year = 10%.

Decrease per year = 10% of 8748

$$= \frac{10}{100} \times 8748$$

$$= \frac{4374}{5}$$

$$= 874.8$$

5

Total depreciation in 3 years = 3×874.8

$$= 2624.8$$

So, the price of machine of before 3 years was

Rs. 2624.8

(b)

Let the age of father is = x

Age of daughter = y

As the age of father is 4 times the age of daughter

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

After 5 years, the age of father would be three times the age of daughter.

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

By equating two equations (1) and (2)

$$4y = 3y + 5$$

$$4y - 3y = 5$$

$$y = 5$$

By putting this value in eq (1)

$$x = 4 \times 5 = 20$$

So, further after 5-years, father will be 20 times the age of daughter.

(C)

As the football is circular in shape, its volume can be calculated by using given formula.

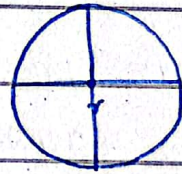
Formula

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

r = radius

Unknown

$$V = ?$$



$$r = d/2$$

Given

$$d = 12 \text{ cm}$$

∴ As we know that radius is the half of diameter given by formula

$$r = d/2 \Rightarrow r = 12/2 = 6 \text{ cm}$$

By putting all these values in the given formula

$$V = \frac{4}{3} (3.1415) (6)^3$$

$$= \frac{4}{3} \times 3.1415 \times 216 = \frac{2714.25}{3}$$

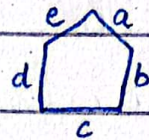
$$V = 904.75 \text{ cm}^3$$

(d)

As we know that pentagon has 5-sides so the perimeter of pentagon can be determined by given formula

Formula

Perimeter = sum of all the sides.



$$P = a + b + c + d + e$$

Unknown

Perimeter = ?

Given

length of each side = 281 m

Putting the value in given formula, perimeter can be calculated.

$$P = 281 + 281 + 281 + 281 + 281$$

$$P = 1405 \text{ m}$$

Q. No. 7

(b)

C is the father's nephew of A

D is cousin of A but not the brother of C

So, C and D are brother and sister. Because

D is the sister of C and Both are the cousins of A.

(C)

Given Series

7, 12, 19, 28, 39,

In the given series there is addition of odd number between two consecutive numbers. As "5" is the adding number between 7 and 12.

With the addition of "2" in every odd digit leads to another consecutive sequence in given series. Between 12 and 19 the adding number is "7" and between 19 and 28 the number is $(7+2)$ which is 9.

Similarly 11 is the adding number between 28 and 39. So the next number in the series will be $11+2 = 13$ which gives next number 52.

7, 12, 19, 28, 39, 52.

(d)

The given shares of A, B, C, D are as follow

share of A

$$A = 5x$$

share of B

$$B = 2x$$

share of C

$$C = 4x$$

share of D

$$D = 3x$$

As C gets Rs. 1000 more than D

$$C = 1000 + D$$

$$4x = 1000 + 3x$$

$$4x - 3x = 1000$$

$$x = 1000$$

So the share of B is

$$B = 2(1000) = 2000$$

share of B is = Rs. 2000.

(Section A)

Q. No. 2

(a)

i RAM and ROM

RAM is random access memory

It stores data temporarily

ROM is Read only memory

It stores data permanently

iii GPS and GIS

GPS is the global positioning system

It is used in satellite for the information access

GIS is geographic information system

It provides information such as images, statistics of a geographical area.

v. Natural Satellite and Artificial Satellite

A satellite which revolves around planets is called natural satellite

Moon the natural satellite of Earth

A satellite which revolves in the space is called artificial satellite

Navigation and weather satellites

iv. Byte and Nibble

Byte is a smallest storage unit.

One byte is equal to 8 bits.

Nibble is even smaller unit of storage

It has 4 bits

(c)

Vitamin

Vitamins are essential for the normal functioning and regulation of human body. One thing is misunderstood about minerals is that they provide energy to the body. They only help in regulation of body functions.

Vitamins are classified into two types on the basis of their solubility.

Water Soluble Vitamins

Some vitamins are soluble in water, these are called water soluble vitamins.

such as vitamin B and C

Fat Soluble Vitamins

Some vitamins are non-polar in nature and are not soluble in water. These are soluble in fat and called fat soluble vitamins.

Vitamin A, D, E, K.

Vitamin A

Vitamin A is also called Retinol

Its deficiency can cause night blindness

It is highly found in Golden rice

Vitamin B

Vitamin B is complex vitamin which consists of Vitamin B₁, B₂, B₃, B₅, B₆, B₈, B₉, B₁₂

These perform different functions.

Vitamin C

Vitamin C is also called as Ascorbic acid

Vitamin D

This vitamin is produced when human skin is exposed to sunlight.

It is highly found vitamin

Its deficiency can cause Rickets

Vitamin K

Vitamin K is mostly use in clotting of blood

It is present in green leaves vegetables.

(d)

Kidney is part of excretory system of human body. It is use in the excretion of nitrogenous and other wastes from the body.

There are two kidney in our body. Left kidney is slightly higher in position than right kidney.

The shape of kidney is similar to the bean shape. The outer part of kidney is called cortex which are further consisted of millions of small tubules. These tubules are called nephrons.

Nephron:

Nephron is the structural and functional unit of kidney. There arises a long tube and falls into the cup shape structure called Bowman's capsule. From this there arises a long tube

which is divided into three parts

Inner convoluted tubule - Proximal tubule

Long U shape structure - Loop of Henle

Outer convoluted tubule - Distal tubule

The distal tubule enter into a duct called the collecting duct. Afferent artery enter into it and forms a porous glomerulus. This enters into the proximal tubule, loop of henle and distal tubule by forming a network of arteries called peripheral arteries.

Functions and Working

It takes place through three process

Absorption

Blood and other things are absorbed here in the glomerulus due to high pressure while proteins fats urea and other salts are filter which enter into the proximal part of the nephron

Reabsorption

Here water, salts and some minerals are reabsorbed into the proximal tubule, loop of henle and distal tubule and then separated.

Separation

Nitrogenous wastes are removed through the distal tubule.

The waste enters into the proximal tubule and filters here and thus in turn enters into the pelvis. After passing through the pelvis, these wastes come into the ureter through tubules and store in the urinary bladder and finally secrete out through urethra.

Q. No. 4

(b)

Solid waste Management

Solid waste management is a process for dumping the solid waste through techniques. These techniques are widely used all around the world for waste management. A complete network is required for proper management of waste.

In such network labor, vehicle, site for dumping all carry necessary importance.

Some important techniques are given as

Landfill

Burning

Incarceration

Recycling

Landfill

In this method a proper site is required which is far away from human settlements and fresh water sources. A big vent is dug out and the waste is filled in it. After the filling of hole it is again covered with mud. This method is not proper and is not widely used in SWM.

Burning

In such method the direct burning is carried out. But some materials and products are harmful and produces toxic smoke, which then pollutes the air and air pollution occurs.

So the direct burning in the atmosphere is avoided.

Incineration

This method is also involved with the burning of solid waste. But here control burning takes place. The specific temperature range is required for different types of waste. This method is quite better and is significantly used all around the world.

Recycling

In this method, some solid waste is recycled through various techniques such as plastic materials are recycled in this method. These recycled products can be used again. This is environment friendly.