

(Section - B)

Q-No. 6(a) The value of a washing machine depreciates at the rate of 10 percent every year. If its present value is Rs. 8748, then what was the price of washing machine three years ago?

Solution: Given data:

$$\text{Present value} = 8748$$

$$\text{Rate of depreciation (R)} = 10\%$$

$$\text{No. of years (T)} = 3$$

$$\text{Original value (P)} = ?$$

Formula for depreciation

$$\text{Present value} = P \left(1 - \frac{R}{100}\right)^T$$

$$8748 = P \left(1 - \frac{10}{100}\right)^3$$

$$8748 = P \left(\frac{9}{10}\right)^3$$

$$8748 = P \left(\frac{729}{1000}\right)$$

$$\frac{8748 \times 1000}{729} = P$$

$$12000 = P$$

Price of machine three years ago was Rs. 12000/-

Q-6(b) A father is four times the age of his daughter. If after 5 years, he would be three times of daughter's age, then further after 5 years, how many times he would be of his daughter's age?

Solution: Let the age of daughter be x .
then the age of father will be $4x$.

Ages after 5 years :

$$\text{Age of daughter} = x + 5$$

$$\text{Age of father} = 4x + 5$$

According to the question

$$\text{Father's age after 5 years} = 3 \times \text{age of daughter after 5 years}$$

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

$$4x + 5 = 3x + 15$$

$$x = 15 - 5$$

$$x = 10 \text{ years}$$

Present age of daughter is (x) = 10 years

Present age of father is $= 4x = 40$ years

Ages after 10 years

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

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

Ratio of father's age to daughter's age = $\frac{50}{20}$
= 2.5

After further five years father's age will be 2.5 times of his daughter's age.

Q-6 (c) What will be the volume of a football with diameter 12 cm?

Solution: Diameter of football is 12 cm
Radius of football = $\frac{12}{2} = 6$ cm

$$\begin{aligned}\text{Volume of football} &= \frac{4}{3} \pi r^3 \\ &= \frac{4}{3} (3.1415) \times 6^3 \\ &= \frac{4 \times 6 \times 6 \times 6^2}{3} (3.1415) \\ &= 288 (3.1415) \\ &= 904.752 \text{ cm}^3\end{aligned}$$

Rough	3.1415
work	$\times 288$
	<u>251320</u>
	251320 \times
	62830 $\times \times$
	<u>904.7520</u>

Q-6 (d). The Pentagon building in Washington D.C is a regular pentagon with each side of 281m. Find perimeter of the building.

Solution:

Length of side of pentagon = 281m

Perimeter = 5 × length of side

$$= 5 \times 281 \text{ m}$$

$$= 1405 \text{ m}$$

Q-No.7(a) Average of 7 consecutive numbers is 20. Find the largest of these number.

Solution

$$\text{Average} = \frac{\text{Sum of numbers}}{\text{Total Numbers}}$$

Let the numbers be

$$n, n+1, n+2, n+3, n+4, n+5, n+6.$$

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

$$20 \times 7 = 7n + 21$$

$$140 - 21 = 7n$$

$$\frac{119}{7} = n$$

$$17 = n$$

Largest of these numbers is

$$n+6 = 17+6 = 23$$

Q-NO.7 (b) A told B that C is his father's nephew. D is A's cousin but not the brother of C. What relationship is there between D and C?

Solution:

A's and C's fathers are brother.

The relationship of D to A is similar to that of D to C.

So D and C are also cousins.

Q-7 (c) Find the next number in the sequence: 7, 12, 19, 28, 39, -.

Solution.

7, 12, 19, 28, 39, 52

$$12 = 7 + 5$$

$$19 = 12 + 7$$

$$28 = 19 + 9$$

$$39 = 28 + 11$$

$$\text{Next number} = 39 + 13 = 52$$

Q-7(d). Sum of money is to be distributed among A, B, C & D in the ratio of 5:2:4:3. If C gets Rs. 1000 more than D, what is B's share?

Solution

Let the sum of money be x .

$$\begin{aligned}\text{Sum of ratio} &= 5+2+4+3 \\ &= 14\end{aligned}$$

According to the question

$$\text{C's share} = \text{D's share} + 1000$$

$$\frac{4}{14} \times x = \frac{3}{14} \times x + 1000$$

$$\frac{4x}{14} = \frac{3x + 1000 \times 14}{14}$$

$$4x - 3x = 14000$$

$$x = 14000$$

$$\text{B's share} = \frac{2}{14} \times 14000$$

$$= \boxed{2000}$$

Part - II

(Section - A)

Q-No. 2 (a) Distinguish the following terms.

(i) RAM & ROM

RAM:

- It stands for random access memory.
- Ram stores information temporarily.
- The data is erased when the computer is shut down.

ROM:

- It stands for read-only memory.
- It saves data permanently.
- Turning off the computer does not affect the data.

(ii) Network and Internet

Network
A network is a collection of one or more computers connected in a shared environment.

Internet:

It is the interconnection of networks.

(iii) GPS & GIS

GPS:

GPS stands for Global Positioning System. It is used to know the exact location of anything on the globe.

GIS:

GIS stands for Geographic Information System. It uses the information obtained from GPS.

(iv) Byte & Nibble

Byte:

It's a unit of computer storage. A byte is equal to 8 bits.

Nibble:

It's also a unit of computer storage. A nibble is equal to 4 bits.

(v) Natural & Artificial Satellite

Natural satellites:- Natural objects revolving around any other object. For example, moon is natural satellite of Earth.

Artificial Satellites:

Man made objects which are made to revolve around any other objects. For example weather satellite.

Q-No. 2 (b) Write a note on optical fibres.

Ans. - Optical fibres:-

Optical fibres are long, thin and cylindrical structures, widely being used for transmission of data.

Composition:-

Optical fibres are made up of silica. It has three parts: core, cladding and plastic coating. Generally these fibres have diameter of a 0.125 mm.

Working of optical fibres:-

Optical fibres transmit data in the form of light rays. The core of fibre has a reflective internal surface.

the light rays are repeatedly reflected in the core until they reach their final destination.

Uses of optical fibres:

- They are used for computer networking
- These are used for telecommunication
- Used in medical instruments.

Q-No. 2 (c) Distinguish water soluble and fat soluble vitamins by giving brief account of all the vitamins.

Water soluble vitamins:

Water soluble vitamins are those which are easily absorbed in the water. These are dissolved in water easily. Excess amount of these vitamins is excreted through urine. Vitamin B complex and vitamin C are water soluble vitamins.

Fat soluble vitamins:-

Fat soluble vitamins dissolve in fat. These do not leave the

body easily. Fat soluble vitamins are stored in liver and fatty tissues. Vitamin A, D, E and K are fat soluble vitamins.

While taking vitamins it should be kept in mind that one can take vitamins B and C in large amount because excessive amount of these vitamins is excreted easily through urine. On the other hand, care should be taken while taking fat soluble vitamins because these do not leave body easily.