

Mock - 4

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Section - B

Question No. 6

(a) Present Age

$$\text{Son} = 30$$

$$\text{Father} = x$$

Five Year before

$$\text{Son} = 30 - 5 = 25$$

$$\text{Father} = x - 5$$

Five year before Father's age was thrice of son's age

$$x - 5 = 3(25)$$

$$x - 5 = 75$$

$$x = 75 + 5$$

$$x = 80$$

Hence, Present age of father is 80

(b)

income tax = 10% of income

Amount of Income tax = Rs. 1500

income = ?

Let income = x

$$x \times 10\% = 1500$$

$$x = \frac{1500}{10\%}$$

$$x = \frac{1500}{\frac{10}{100}}$$

$$x = \frac{1500 \times 100}{10}$$

$$x = 1500 \times \frac{100}{10}$$

$$x = 15000$$

Hence, income is 15000

(c)

given data:

arithmetic mean of 6 numbers = 20

remove one of number then average = 15

Solution:

Let list of 6 numbers

$$x_1, x_2, x_3, x_4, x_5, x_6$$

So

$$\frac{x_1 + x_2 + x_3 + x_4 + x_5 + x_6}{6} = 20$$

$$x_1 + x_2 + x_3 + x_4 + x_5 + x_6 = 120$$

Remove one Number average = 15

$$\frac{x_1 + x_2 + x_3 + x_4 + x_5}{5} = 15$$

$$x_1 + x_2 + x_3 + x_4 + x_5 = 75$$

$$75 + x_6 = 120$$

$$x_6 = 120 - 75$$

$$x_6 = 45$$

So, removed number is 45

(d)

(i) 8, 4, 32, 7, 5

ii) 17, 19, 23, —, 31, 37

There is sequence of prime number

17, 19, 23, 29, 31, 37

Question No. 8

(a) 3 liters of paint to cover area 24 m^2
 what quantity require for area 50.4 m^2

solution

$$3 \text{ liter} : x \text{ liter} :: 24 \text{ m}^2 : 50.4 \text{ m}^2$$

$$x \times 24 = 3 \times 50.4$$

$$x = \frac{151.2}{24}$$

$$x = 6.3 \text{ liter}$$

(b) to find percentage

$$x \% \text{ of } 3 = 6.3 - 3$$

$$\frac{x}{100} \times 3 = 3.3$$

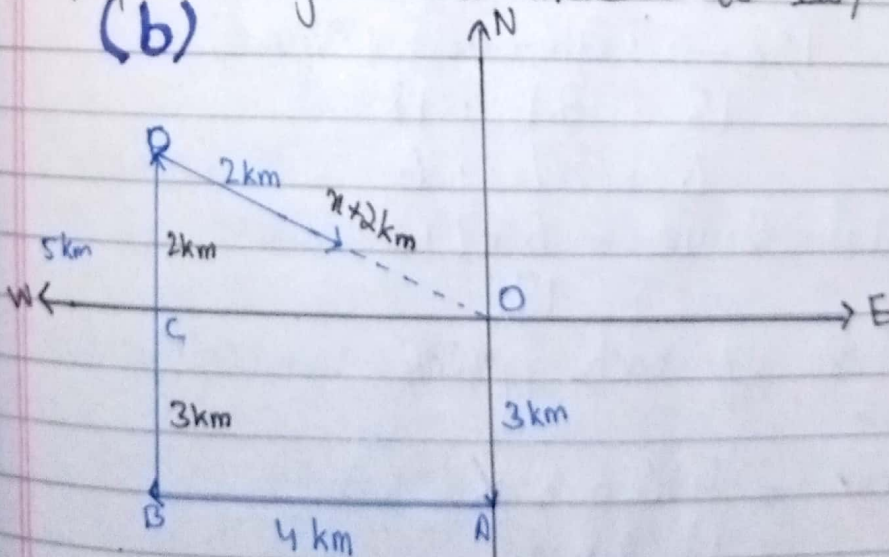
$$3x = 330$$

$$x = \frac{330}{3}$$

$$x = 110$$

So, percentage will increase to 110%.

(b)



According to Pythagoras theorem

$$H^2 = B^2 + P^2$$

$$(x+2)^2 = (4)^2 + (2)^2$$

$$(x+2)^2 = 16+4$$

taking square root

$$\sqrt{(x+2)^2} = \sqrt{16+4}$$

$$x+2 = \sqrt{20}$$

$$x+2 = 2\sqrt{5} - 2$$

$$x = 4.24$$

(c)

Tahir Total investment 1 year = 15000×12
= 180000

Umar investment of 1 year = 30000×7
= 210,000

Usman investment of 1 year = 15000×12
= 180,000

So, profit earned = 406,000

$$180,000 : 210,000 : 180,000$$

$$18 : 21 : 18$$

$$6 : 7 : 6$$

$$\text{Total share} = 6+7+6$$

$$= 19$$

Share of each person

$$\begin{aligned} \text{Tahir} &= 406,000 \times \frac{6}{19} \\ &= 128210.5 \end{aligned}$$

$$\text{Umar} = 406000 / 19 \times 7$$

$$= 149579 \text{ Rs}$$

$$\text{Usman} = 406000 / 19 \times 6$$

$$= 128210.5 \text{ Rs}$$

(D)

$$\text{Property} = 640000$$

$$\text{Debt amount} = 40,000$$

$$\text{Amount spent on his burial} = 5000$$

solution

$$\text{Net amount} = 640,000 - 40,000 - 5000$$

$$= 595000$$

According to Islamic law widow's share is $1/8$

$$= 595000 \times 1/8$$

$$= 74375$$

Remaining amount = $595000 - 74375 = 520625$
 According to Islamic law daughter share half of the son's share

$$\text{Son : Son : Daughter}$$

$$2 : 2 : 1$$

$$\text{Total} = 5$$

$$\text{Son share} = 520625 \times 2/5$$

$$= 208250$$

$$\text{daughter share} = 520625 \times 1/5$$

$$= 104125$$

$$\begin{array}{r} 74375 \\ 8 \overline{) 595000} \\ \underline{56} \\ 35 \\ \underline{32} \\ 30 \\ \underline{28} \\ 20 \\ \underline{16} \\ 40 \\ \underline{40} \\ 0 \end{array}$$

SECTION - A

Question No. 4

Artificial Intelligence

It is a study of intelligent machines capable of performing the same kinds of function that characterize human thoughts.

AI Revolutionized World

AI revolutionized world by changing the lives of people. It is used in almost every field and creating ease for human.

The following are the areas where AI revolutionized world

1- Automation and Efficiency

AI has automated many process that were once time-consuming and labor-intensive. This led to increased efficiency and productivity in industries such as manufacturing, logistics, and customer services. Robots and AI driven system can perform repetitive

task with greater consistency, precision and resources to freeing up human creative and strategic focus on more aspects of work.

2- Transportation:

an area where AI and machine represent bring an innovations. Industries are researching to develop self-driven cars and other transportation. Autonomous vehicles use advanced technology. The autonomous vehicles aim to reduce accidents, improve traffic flow, and provide mobility behaviour to people who may have limited access to traditional transportation method.

3- Health Sector:

AI tools are helping people and designers to improve computational sophistication in health care. AI powered diagnostic tools can process vast amount of medical data, assisting healthcare professionals in making more accurate diagnoses and improving patient outcomes.

4- Criminal Justice:

AI is being deployed in the criminal Justice area. Judicial experts claim AI program reduce human bias in law enforcement and leads to fairer sentencing system. AI tools are sometimes used to assess the risk of an individual committing future crimes or to assist in determining sentencing guidelines.

5- Financial Services:

AI has revolutionized the financial industry by enabling algorithmic trading, fraud detection, and credit risk assessment. AI-driven are also helping banks and financial institutions improve customer services.

(c)

Vaccine

A vaccine is a biological preparation that improves immunity to a particular disease. A vaccine typically contains an agent that resembles a

disease-causing micro-organisms, and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins.

Vaccination

A method of stimulating resistance in the human body to specific diseases-causing organisms such as bacteria or viruses is called immunization or vaccination.

Types of Vaccine

There are different types of vaccine including:

1. Attenuated (weakened):

The live viruses are used in some vaccines such as in the measles, mumps and rubella vaccine.

2. Killed (inactivated):

The viruses or bacteria are used in some vaccines, such as in inactivated

Polio Virus (IPV).

3. Toxoid Vaccines:

It contain an inactivated toxin produced by the bacterium. For example, the diphtheria and tetanus vaccines are toxoid vaccines.

4. Conjugate Vaccines:

It contains part of bacteria combined with proteins such as Subunit, recombinant vaccines