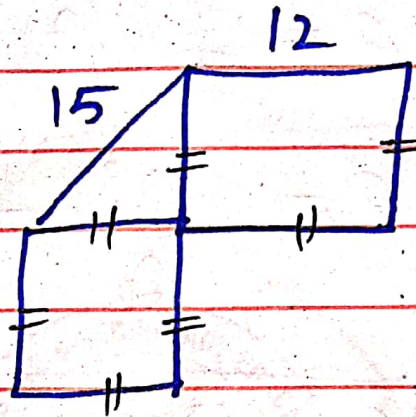


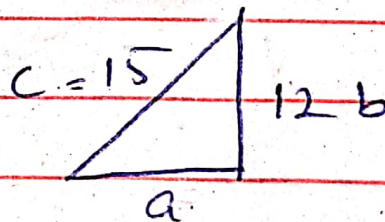
Section - II

Qno # 08 (c)



Solution

Apply Pythagoras Theorem
on Triangle



$$c^2 = a^2 + b^2$$

$$(15)^2 = a^2 + (12)^2$$

$$225 - 144 = a^2$$

$$a = 9$$

Now, area of triangle

$$a = \frac{1}{2}(bh)$$

$$a = \frac{1}{2}(12 \times 9)$$

$$a = \frac{108}{2} = 54 \text{ cm}^2$$

$$a = 54 \text{ cm}^2$$

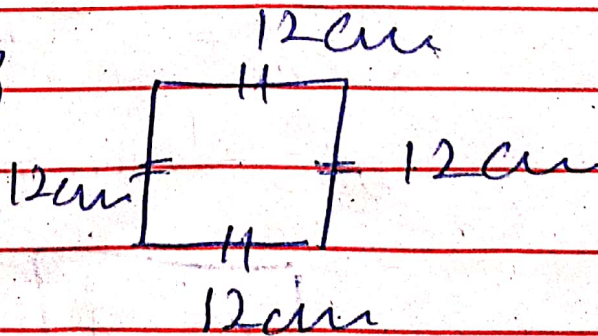
Perimeter of triangle

$$P = a + b + c$$

$$P = 9 + 12 + 15$$

$$P = 36 \text{ cm}$$

Area of



$a = \text{side} \times \text{side}$

$$a = 12 \times 12$$

$$a_2 = 144 \text{ cm}^2$$

Perimeter

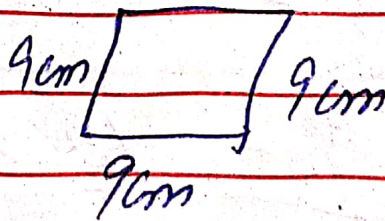
$$P = 2(\text{length} + \text{width})$$

$$P = 2(12 + 12)$$

$$P = 2(24)$$

$$P_2 = 48$$

Now area of last square



$$a = 9 \times 9 = 81 \text{ cm}^2$$

$$a_3 = 81 \text{ cm}^2$$

$$P = 2(L + W)$$

$$P = 2(9 + 9)$$

$$P_3 = 36 \text{ cm}$$

Now, total area of figure

$$A_T = A_1 + A_2 + A_3$$

$$A_T = 54 + 144 + 81$$

$$A_T = 279 \text{ cm}^2$$

Total Perimeter of figure

$$P_T = P_1 + P_2 + P_3$$

$$P_T = 36 + 48 + 36$$

$$P_T = 120 \text{ cm}$$

Qno # 8(a)

Solution

The sequence of brother is changed in reverse direction along with reversing the alphabet with decreasing order as:

BROTHER is written

as:

QDGSNQA

So, SISTER is written

as;

QDGRHR

Q No # 8 (b)

Solution

Formula of Probability

is

$$P(A) = \frac{n}{N}$$

= $\frac{\text{Favourable cases}}{\text{Possible cases}}$

So, Probability of getting

i- (8) is = $\frac{1}{12}$

iii- a Perfect square is =

$$\frac{2}{12} = \frac{1}{6}$$

ii- Even number is =

$$\frac{6}{12} = \frac{1}{2}$$

IV- a negative number is

$$= \frac{0}{12} = 0$$

V- A number less than

13 is =

$$\frac{12}{12} = 1$$

Qno # 8(d)

Solution:

Group of nine students
having ages:

15, 15, 16, 16, 16, 17, 17, 18, 19

Mean of students =

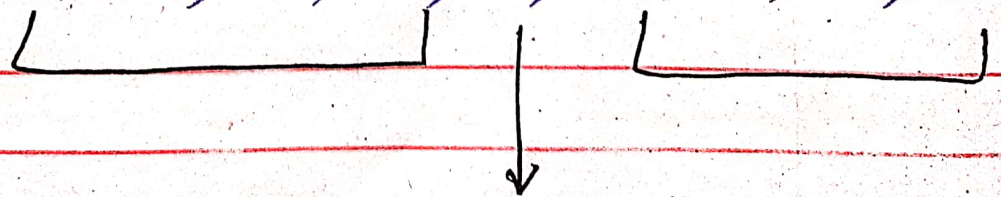
$$\frac{15+15+16+16+16+17+17+18+19}{9}$$

$$= \frac{149}{9} = 16.5\bar{5}$$

$$\text{Mean} = 16.5\bar{5}$$

Medium of students is

15, 15, 16, 16, 16, 17, 17, 18, 19



$$\text{Medium is} = 16$$

Mode of group of students =

15, 15, 16, 16, 16, 17, 17, 18, 19

Most repetitive is 16,
So, mode is 16

Range of group of students :

$$\text{Range} = \text{Maximum age} - \text{Minimum age}$$

$$= 19 - 15$$

$$= 04$$

QNO # 07 (a)

Solution

$$T = 400 \text{ seats}$$

$$O = 325 \text{ occupied}$$

Attendance at a % capacity

$$\text{Absent/Valent} = 400 - 325 = 75$$

$$\text{Valent in \%} = \frac{75}{400} \times 100$$

$$= 18.75$$

So, attendance in terms of Percent capacity is

$$= 100 - 18.75$$

$$= \boxed{81.25\%}$$

Qno # 07 (b)

Solution :

Persons	Weight of sugar	Days
30	40	10
↓ 80	↑ 320	↑ x

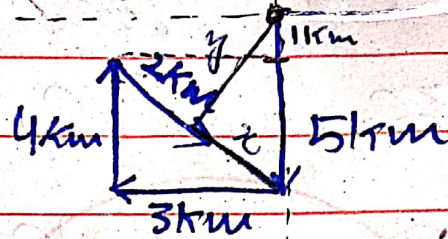
$$\frac{x}{10} = \frac{30}{80} \times \frac{320}{40}$$

$$x = 10 \times (3)$$

$$x = 30 \text{ days}$$

Thus, 80 persons use 320kg of sugar 30 days.

Solution:



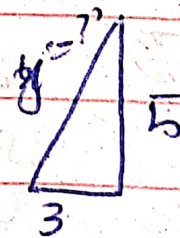
Apply Pythagoras Theorem

$$(2+x)^2 = \sqrt{4^2 + (3)^2}$$

$$2+x = \sqrt{16+9}$$

$$2+x = \sqrt{25} = 5$$

$$\boxed{x = 3}$$



$$y^2 = (3)^2 + (5)^2 = 9 + 25$$

$$y = \sqrt{36} \Rightarrow 6$$

B

This Crow is 6km
away from its original
position.

Q no # 07 (d)

Solution

$$R = 10 \text{ cm}$$

$$h = 36 \text{ cm}$$

$$V = ??$$

$$\text{Volume of cylinder} = \pi r^2 h$$

$$V = \pi \times (10)^2 \times 36$$

$$V = \pi \cdot 100 \times 36$$

$$V = 3600\pi \text{ cm}^3$$

$$V = 3600 \times 3.14 \text{ cm}^3$$

$$V = 11,309.7 \text{ cm}^3$$

Qno# 04(c)

Types of Waves Used in:

RADAR:

Radar uses Radio-waves to determine distance and angle of objects.

SONAR:

SONAR uses Ultrasonic waves for its objects.

LIDAR:

Lidar uses visible ~~or~~ light or radiation to detect

the object.

Mobile Phone :

Mobile phone uses Radio Waves for transmitting its signals.

Thermistors :

It is a Thermally sensitive resistor that changes value with the temperature.

NOTE:

- i. **Part-II is to be attempted on the separate Answer Book.**
- ii. **Attempt ONLY FOUR questions from PART-II by selecting TWO questions from EACH SECTION. ALL questions carry EQUAL marks.**

PART-II
SECTION-I

Q. No. 2

- a. Pakistan suffered a loss of \$40bn due to heavy floods of 2022; in this context climate finance is the central question for developing countries. Discuss in the light of COP-28 going to start in UAE.
- b. Distinguish water-soluble and fat-soluble vitamins. Give examples of diets containing different vitamins.
- c. Explain the structure of Eye.
- d. Draw a flow chart of different parts of Brain.

Q. No. 3

- a. Global warming is a wild beast and we all are poking at it which sticks, justify.
- b. What is the origin of universe, how age of universe can be calculated?
- c. Write a short note on semi-conductors.
- d. What is eclipse? Distinguish between solar and lunar eclipse.

Q. No. 4

- a. Define the following:
Pesticides, Herbicides, Insecticides, Ceramics, and Green House Effect.
- b. Explain the bonding in water molecule.
- c. What types of waves are used in RADAR, SONAR, LIDAR, Mobile Phone and Thermistors?
- d. What are advantages and disadvantages of AI?

Q. No. 5

- a. Draw a block diagram of input and output devices of Computer.
- b. Define optics. How does an optical fiber work?
- c. Discuss different methods of Solid Waste Management.
- d. Distinguish GPS & GIS.

SECTION-II

Q. No. 6

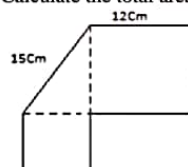
- a. A farmer cuts a 300 ft. fence into two pieces of different sizes. The longer piece should be four times as long as the shorter piece. How long are the two pieces?
- b. If a rectangle has a length that is three more than twice the width and the perimeter is 20-inches, what are the dimensions of the rectangle?
- c. A cricket team won 60% of the total matches it played during the year. If it lost 24 matches in all and no matches were drawn, find the number of matches played during the year.
- d. Two numbers are in the ratio 3: 2. If 2 is added to the first and 6 is added to the second number, they are in the ratio 4: 5. Find the numbers.

Q. No. 7

- a. A concert hall 400 seats of which 325 are occupied. Express the attendance at a percent of capacity.
- b. If 30-persons use 40kg of sugar in 10 days. Find in how many days 80-persons will use 320kg of sugar?
- c. A crow travels south 5km, and then 3km west, and then 4km north. Finally travels 2km south-east. How far is the crow from initial point?
- d. If radius of a cylinder is 10cm and height is 36cm. Find the volume of cylinder.

Q. No. 8

- a. If in a certain language, BROTHER is written as QDGSNQA, then in the same language, SISTER would be written as -----?
- b. A card is drawn at random from a box containing 12 cards numbered 1,2,3,4,5,...,12. Find the probability of drawing (i) '8', (ii) an even number, (iii) a perfect square, (iv) a negative number and (v) a number less than 13.
- c. Calculate the total area and perimeter of the given shape.



- d. There are nine students in a group having ages 15, 15, 16, 16, 16, 17, 17, 18, 19. Calculate **mean, medium, mode and range** of their ages, also define the above mentioned terms.