SECTION-A

Question 1 consists of Multiple Choice Questions (i-xii) of 1 mark each. Choose the appropriate option from the given options : **12x1=12**

1.(i) Which of the following integer will fill the blank? 1

$$0 + \_\_\_\_ = -43$$

(a) +43 (b) $\frac{-1}{43}$

(c) −43 (d) 100

(ii) The tally marks for numbers 7 is : 1

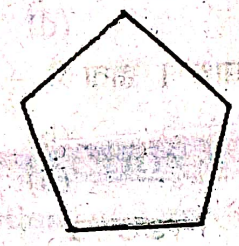
(a) |||||||

(b) 𝍸 𝍸 |

(c) 𝍸 |||

(d) 𝍸 ||

(iii) How many angles are there in the given shape? 1



(a) 0 (b) 10

(c) 5 (d) 4

(iv) Find the area of the circle of radius 7 cm. 1

(a) 49 cm^2 (b) 70 cm^2

(c) 298 cm^2 (d) 154 cm^2

(v) Which of the following letters of English alphabet has reflectional symmetry about both horizontal and vertical mirrors? 1

(a) X (b) Y

(c) T (d) L

(vi) For any integer $a \neq 0$, $0 \div a$ is : 1

(a) a (b) 1

(c) Not defined (d) 0

(vii) Which of the following angle is equal to its complement? 1

(a) 90° (b) 60°

(c) 45° (d) 30°

(viii) The distance around a circular region is known as its : 1

(a) Circumference (b) Area

(c) Radius (d) Diameter

(ix) Which of the following statement is true? 1

(a) $(-7) > (-5)$ (b) $(-7) < (-5)$

(c) $(-7) + (-5) > 0$ (d) $(-7) - (-5) > 0$

(x) How many end points does a line have? 1

(a) 0 (b) 1

(c) 2 (d) Infinite

(xi) The ratio of area of circle to the area of semicircle is : 1

(a) 3:1 (b) 4:1

(c) 2:1 (d) 1:1

(xii) The integer whose product with (–1) is 1 is : 1

(a) 0 (b) +2

(c) –1 (d) +1

SECTION-B

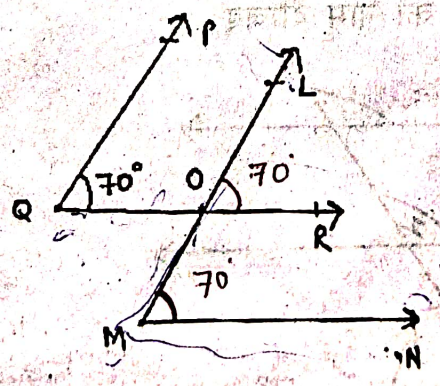
Question 2 to 7 is Objective type questions of 2 marks each. **6x2=12**

2. Write down a pair of integers whose : 2

(a) Sum is (–5)

(b) Difference is (–2)

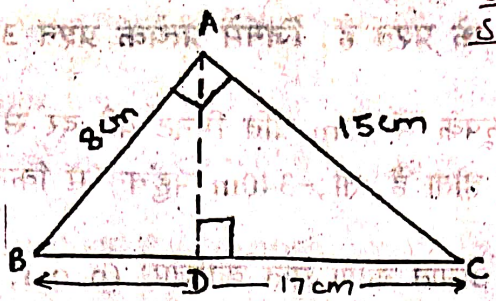
3. In the given figure, the arms of two angles are parallel. If ∠PQR =70°. Then : 2



(i) find ∠LOR 70°

(ii) find ∠LMN 70°

4. In the given figure, ΔABC is right angled at A. AD is perpendicular to BC. If AB = 8 cm, BC = 17 cm and AC = 15 cm. 2



Q.4
Sol:
i) Area of $\Delta ABC = \frac{1}{2} \times B \times H$

$\Rightarrow \frac{1}{2} \times 15 \times 8 = \frac{120}{2} = 60\ cm^2$

ii) Area of $\Delta ABC = \frac{1}{2} \times BC \times AD$

$\frac{1}{2} \times 17 \times AD = 60$

$AD = \frac{60 \times 2}{17} \Rightarrow \frac{120}{17}$

$AD = 7.06\ cm$

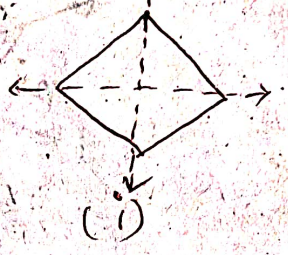
(i) Find the area of ΔABC

(ii) Also, find the length of AD

5. State the number of lines of symmetry for the following figures : 2

(a) A rhombus 2

(b) A parallelogram 0



6. Find the additive inverse of the following integers : 2

(i) 23 → −23

(ii) −39 → 39

7. State the kind of each of the following angles : 2

(i)

obtuse

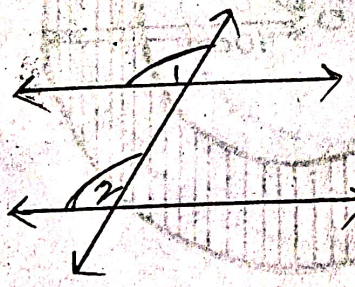
(ii)

complete angle

OR

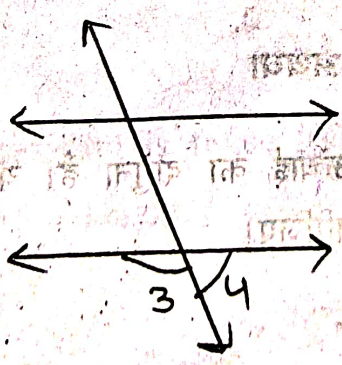
Name the pair of angles in each figure. 2

(i)



corresponding angles

(ii)



Linear pair

SECTION-C

Q.8 to 10 is Short answer type questions of 3 marks each. **3x3=9**

8. An elevator descends into a mine shaft at the rate of 12 m/min. If the descent starts from 20 m above the ground level, how long will it take to reach –340 m? 3

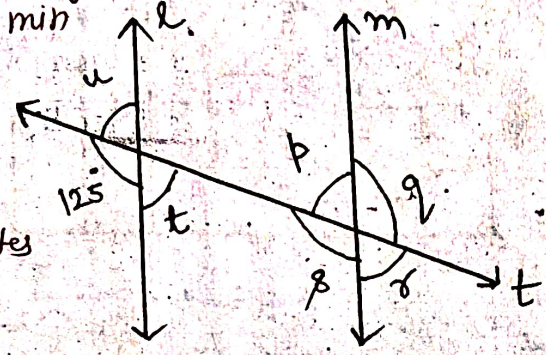
Ans 8 Total distance covered by an elevator = 20 − (−340 m) ⇒ 20 + 340 = 360 m

Time taken to cover 12 m = 1 min

Time taken to cover 360 m

⇒ $\frac{360}{12}$ = 30 minutes

9. In the given figure, if $\ell \parallel m$. Find the unknown angles (p, q, r, s, t & u) 3



$S = 125$ (corresponding angles)

$q = S = 125$ (vertical opposite angles)

$U + 125 = 180$ (Linear pair)

$U = 180 - 125$

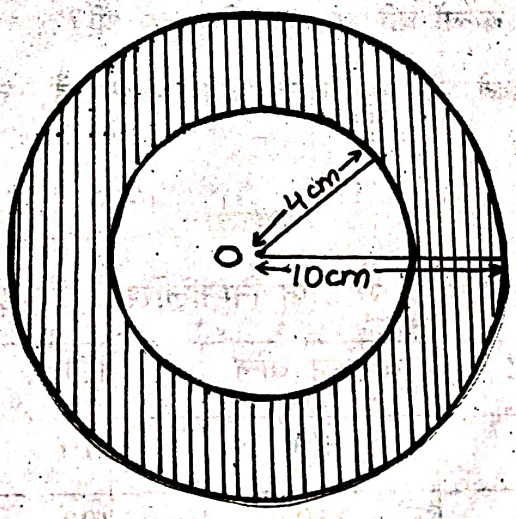
$U = 55$

$t = u = 55$ vertical opposite angles

$p = u = 55$ (corresponding angles)

$r = p = 55$ (vertical opposite angles)

10. The given figure shows two circles with the same centre. The radius of the larger circle is 10 cm and the radius of the smaller circle is 4 cm. Find the shaded area between two circles ($\pi = 3.14$) 3



Sol. Q.10

radius of bigger circle = 10 cm

Area of bigger circle = πR^2

$\Rightarrow \frac{3.14}{100} \times 10 \times 10 = 314\ cm^2$

radius of smaller circle = 4 cm

Area of smaller circle = πr^2

$\Rightarrow \frac{3.14}{100} \times 4 \times 4$

$\frac{314 \times 16}{100} \Rightarrow \frac{5024}{100}$

$\Rightarrow 50.24\ cm^2$

Area of shaded region ⇒

Area of bigger circle − Area of smaller circle

⇒ $314\ cm^2 - 50.24\ cm^2$

$= 263.76\ cm^2$

OR

The base of a parallelogram is twice its height. If the area of the parallelogram is 578 cm^2. Find the base and height. 3

Sol. Let Base of parallelogram = x

height of parallelogram = 2x

Area of parallelogram = Base × Height

Area of parallelogram = 578 cm^2

$x \times 2x = 578$

$2x^2 = 578$

$x^2 = 289$

$x^2 = 17^2$

$x = 17\ cm$

Base = 17 cm

Height = 2x

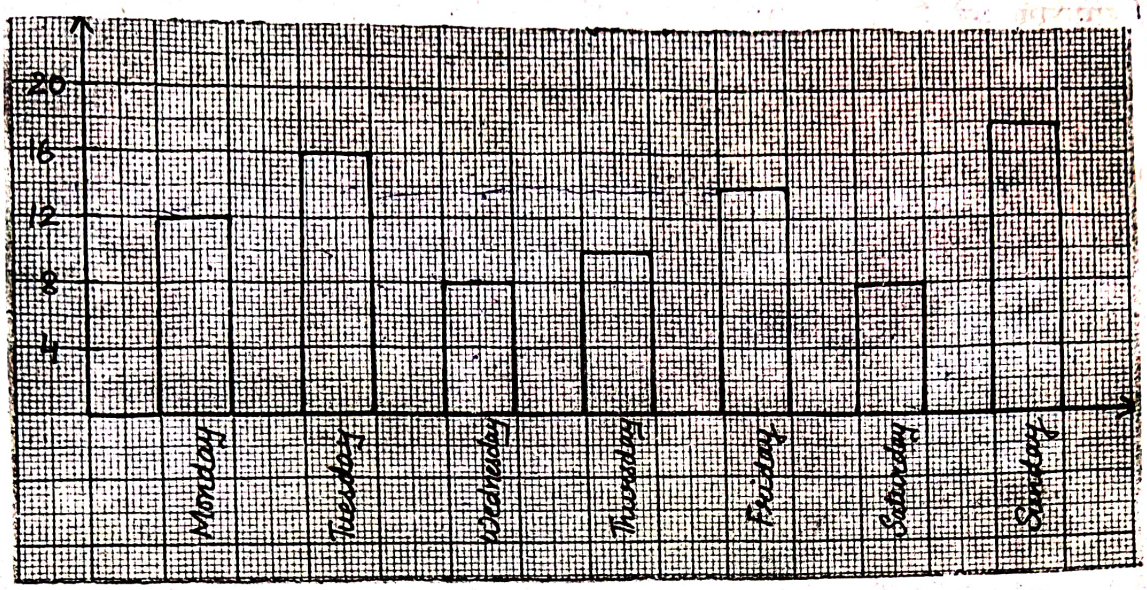
⇒ 2 × 17

⇒ 34 cm

SECTION-D

Q.11 to 13 is Long answer type questions of 5 marks each. **3x5=15**

11. The sale of electric bulbs on different days of a week is shown below. Answer the following questions :



(i) How many bulbs are sold on Friday? 14 bulbs

(ii) On which of the days, minimum number of bulbs were sold? Wednesday and Saturday

(iii) On which of the days, same number of bulbs were sold? Wednesday and Saturday

(iv) On which of the days, maximum number of bulbs were sold? Sunday

(v) If one big carton can hold 10 bulbs. How many cartons were needed in given week? 9 cartons

OR

Consider this data collected from a survey of a colony. 5

Favourite sport	Cricket	Basket Ball	Swimming	Hockey	Athletics
Watching	1240	470	510	430	250
Participating	600	350	400	250	300

(i) Draw a bar graph of participants using an appropriate scale.

(ii) Which sports is most popular? cricket

(iii) Which is more preferred, watching or participating in sports? watching

(iv) Name the sports where the number of participants is higher than the number of viewers. Athletics

12. What will be the measure of the supplement of each one of the following angles? 5

(i) $100°$ $\Rightarrow 180-100=80°$ (ii) $90°$ $\Rightarrow 180-90=90°$

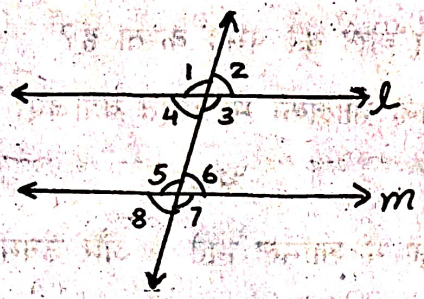
(iii) $55°$ $\Rightarrow 180-55=125°$ (iv) $125°$ $\Rightarrow 180-125=55°$

(v) $\frac{2}{5}$ of right angle $\Rightarrow \frac{2}{5}\times\frac{90}{1} \Rightarrow \frac{180}{5} \Rightarrow 36°$

Supplement $= 180°-36 = 144°$

OR

If $\ell \parallel m$ then write :



(i) Pairs of corresponding angles $\angle 1$ and $\angle 5$, $\angle 4$ and $\angle 8$, $\angle 2$ and $\angle 6$, $\angle 3$ and $\angle 7$

(ii) Pairs of vertically opposite angles $\angle 1$ and $\angle 3$, $\angle 2$ and $\angle 4$, $\angle 5$ and $\angle 7$, $\angle 6$ and $\angle 8$

(iii) Pairs of alternate angles $\angle 4$ and $\angle 6$, $\angle 3$ and $\angle 5$, $\angle 1$ and $\angle 7$, $\angle 2$ and $\angle 8$

13. Write centre of rotation and order of rotation for the following shapes : 5

(i) Square (ii) Scalene triangle

(iii) Regular hexagon (iv) Circle

(v) Rectangle

SECTION-E

Q.14 to 16 is Source Based/Case Study Questions of 4 marks each. **3x4=12**

14. In Shimla, the temperature at noon was 6°C. Over the next few hours, the temperature dropped by 3°C each hour.

Based on this information answer the following questions :

(i) What was the temperature at 12:00 noon? $6°C$ 1

(ii) What was the temperature at 3:00 PM? $6-3(3)=6-9 \Rightarrow -3°C$ 1

(iii) If the temperature rises by 2°C per hour till 3 O'clock and dropped by –3°C per hour after 3 p.m. then what would be the temperature at 6 p.m? 2

OR $6+3(2)-3(3) \Rightarrow 6+6-9 \Rightarrow 3°C$

If the temperature at 6 p.m. was –12°C, and it rose by 2°C per hour during the night, what would the temperature be at midnight?

15. A class of 30 students was surveyed about their favourite fruits. The results are as follows:

Favourite Fruits	Apples	Bananas	Oranges	Grapes	Mangoes
No.of students	10	8	5	4	3

Based on this information answer the following questions :

(i) Which fruit is the most popular among the students? Apples 1

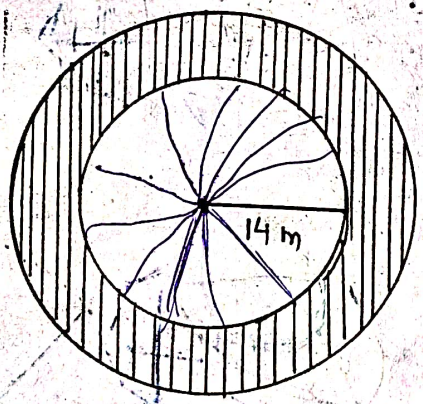
(ii) What fraction of class prefer bananas? $\frac{8}{30} \Rightarrow \frac{4}{15}$ 1

(iii) Represent the data in tabular form using tally marks. 2

OR

If 10 more students joined the class and half of them preferred grapes, how many students now prefer grapes? $4 + \frac{1}{2}$ of $10 \Rightarrow 4+5 = 9$ students

16. A community is developing a circular park of radius 14 meters. They plan to install a walking path around a park and place benches at regular intervals along the circumference.



i) Area of circle $= \pi r^2$
$\Rightarrow \frac{22}{7} \times 14 \times 14$
$\Rightarrow 22 \times 28$
$= 616\ m^2$

ii) Circumference of circle $= 2\pi r$
$\Rightarrow 2 \times \frac{22}{7} \times 14 \Rightarrow 88$ m

iii) No of benches required =
$\Rightarrow \frac{88\ m}{4} \Rightarrow 22$ benches

OR.

iii) Radius $= 14 + 2 \Rightarrow 16$ m
Area of circle $= \pi r^2$
$\Rightarrow \frac{22}{7} \times 16 \times 16 \Rightarrow$
$\Rightarrow \frac{5632}{7} \Rightarrow 804.57\ m^2$

Based on this information answer the following questions :

(i) Calculate the area of the circular park. 1

(ii) Find the circumference of the park.

(iii) If benches are placed after every 4 metres along the circumference, how many benches will be required? 2

OR

(iii) If the community decided to add a 2-meter wide walking path around the park, what will be the new area including the path?