CLASS – VII
SUBJECT- MATHEMATICS

TIME ALLOWED: 2 ½ Hrs.  
Max. Marks : 60

General Instructions :-

1. All questions are compulsory.
2. The question paper consist of 25 questions divided into four Sections A, B, C and D.
3. Each question of sections A is of 1 mark, section B is of 2 marks each, Section C is of 3 marks each and section D of 4 marks each (total 60 marks).
4. The Diagrams and constructions should be drawn neatly.
5. Attach the graph paper(s) inside the sheet and mention your name roll number on it.

SECTION – A (1 MARK)

Q 1 Find the ratio of 30 days to 36 hours.

Q 2 Name the angle which is included between the sides DE and EF of \( \triangle DEF \)?

Q 3 Find the number of lines of symmetry in the given figure:

\[ \text{Diagram of a hexagon} \]

Q 4 Write a rational number equivalent to \( \frac{4}{9} \).

Q 5 If \( p = –2 \), find the value of \( p^2 – 2p – 100 \).

Q 6 What is the circumference of a circular disc of radius 14 cm?
SECTION – B

Q 7 The population of a city decreased from 25,000 to 24,500. Find the percentage decrease.

Q 8 Write the following rational numbers in ascending order:

\[ \frac{3}{7} , \frac{3}{2} , \frac{3}{4} \]

Q 9 You want to show that \( \triangle ART \cong \triangle PEN \). If it is given that \( \angle T = \angle N \) and you are to use SAS criterion, you need to have

(i) \( RT = \)

(ii) \( PN = \)

Q 10 What cross-sections do you get when you give a vertical cut to the following solids?

(a) A die (b) A round apple

Q 11 Give the order of the rotational symmetry of the given figures about the point marked ‘x’
Q 12 For given solid, draw front view and side view.

A brick

Q 13 Which letters of the English alphabet have reflection symmetry (i.e., symmetry related to mirror reflection) about?

(a) a vertical mirror (write any two)

(b) a horizontal mirror (write any two)

SECTION – C

Q 14 Juhi sells a washing machine for Rs 13,500. She loses 20% in the bargain. What was the price at which she bought it?

Q 15 Subtract:

\[5a^2 - 7ab + 5b^2 \text{ from } 3ab - 2a^2 - 2b^2\]

Q 16 Find any three rational numbers between

\[\frac{3}{5} \text{ and } \frac{3}{4}\]
Q 17 In the figure given below, ray AZ bisects $\angle DAB$ as well as $\angle DCB$.

(i) State any two pairs of equal parts in triangles BAC and DAC.

(ii) Is $\angle BAC = \angle DAC$? Give reasons.

(iii) Is $AB = AD$? Justify your answer.

Q 18 Do as directed

i) Find the sum $\frac{5}{4} + (-\frac{11}{4})$

ii) Find the product $\frac{3}{5} \times (-\frac{5}{3})$

Q 19 Two sides of the parallelogram ABCD are 6 cm and 4 cm. The height BE corresponding to the base CD is 3 cm. Find the

(i) area of the parallelogram

(ii) the height BF corresponding to the base AD.

Q 20 The 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:

(a) the area of the larger circle

(b) the area of the smaller circle
(c) the shaded area between the two circles. \( \pi = 3.14 \)

Q 21 The minute hand of a circular clock is 15 cm long. How far does the tip of the minute hand move in 1 hour. (Take \( \pi = 3.14 \))

SECTION – D(4 MARKS)

Q 22 Chalk contains calcium, carbon and oxygen in the ratio 10:3:12.

i) Find the percentage of the carbon in the chalk.

ii) If in a stick of chalk, carbon is 3g, what is the weight of the chalk stick?

Q 23 Two cross roads, each of width 10 m, cut at right angles through the centre of a rectangular park of length 700 m and breadth 300 m and parallel to its sides. Find the area of the roads.

Also find the area of the park excluding cross roads. Give the answer in hectares.

Q 24 From the sum of \( 3x - y + 11 \) and \( -y - 11 \), subtract \( 3x - y - 11 \).

Q 25 What should be added to \( x^2 + xy + y^2 \) to obtain \( 2x^2 + 3xy \)?