

Mathematics
Sample Question Paper - 2
Class 6 (Ganita Prakash)
(Chapters 1 to 5)

Time Allowed: 2 Hours 30 Minutes

Maximum Marks: 60

GENERAL INSTRUCTIONS

1. All 16 questions are compulsory, subject to the internal choices given.
2. Section A has 12 multiple-choice parts of 1 mark each. Choose one correct option.
3. Sections B, C and D carry 2, 3 and 5 marks per question respectively.
4. Each case in Section E carries 4 marks, divided as 1 + 1 + 2.
5. Attempt only one alternative wherever OR is given.
6. Show working clearly. Use a ruler and protractor for constructions.
7. Draw graphs and figures neatly in your answer sheet. Calculators are not allowed.

SECTION A

Multiple Choice Questions | $12 \times 1 = 12$ marks

1. (i) The dot arrangements show triangular numbers. How many dots belong in the next arrangement?



- | | |
|------------------|------------------|
| (a) 12
(c) 16 | (b) 15
(d) 18 |
|------------------|------------------|
- (ii) Which number comes immediately after 216 in the cube-number sequence?
- | | |
|--------------------|--------------------|
| (a) 243
(c) 343 | (b) 256
(d) 432 |
|--------------------|--------------------|
- (iii) What is the largest five-digit number whose digit sum is 14?
- | | |
|------------------------|------------------------|
| (a) 95000
(c) 90500 | (b) 94100
(d) 99999 |
|------------------------|------------------------|
- (iv) What is the smallest possible difference between two different prime numbers?
- | | |
|----------------|----------------|
| (a) 0
(c) 2 | (b) 1
(d) 3 |
|----------------|----------------|
- (v) The number line has equally spaced ticks. Which number belongs at X?



- | | |
|----------------------|----------------------|
| (a) 1990
(c) 2015 | (b) 2005
(d) 2030 |
|----------------------|----------------------|
- (vi) What is the remainder when 173 is divided by 10?
- | | |
|----------------|----------------|
| (a) 1
(c) 3 | (b) 2
(d) 7 |
|----------------|----------------|

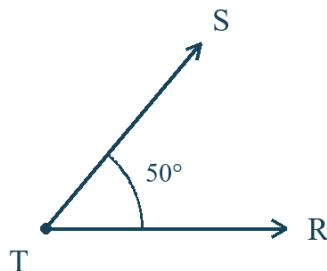
(vii) A prime factorisation of 63 contains which prime twice?

- (a) 2 (b) 3
(c) 7 (d) 9

(viii) In the worked digit-sum example, which number has the same digit sum as 68?

- (a) 175 (b) 176
(c) 177 (d) 178

(ix) The marked opening is 50° . What type of angle is it?



- (a) Acute (b) Right
(c) Obtuse (d) Straight

(x) Using the scale 1 unit length = 10 runs, what bar height represents Smriti's 80 runs in Match 1?

- (a) 4 units (b) 8 units
(c) 10 units (d) 80 units

(xi) A number card is changed from 62026 to 62036. Which statement is correct?

- (a) Both are palindromes (b) Only 62026 is a palindrome
(c) Only 62036 is a palindrome (d) Neither is a palindrome

(xii) A robot turns 180° and then another 180° in the same direction. Its total turn is:

- (a) 90° (b) 180°
(c) 270° (d) 360°

SECTION B

Very Short Answer Questions | $6 \times 2 = 12$ marks

2. List the common factors of 35 and 50. Show the factor lists you use. [2]

3. Use a protractor to draw an angle of 112° . Label its vertex and arms. [2]



Use OP as a reference arm; draw in your answer sheet.

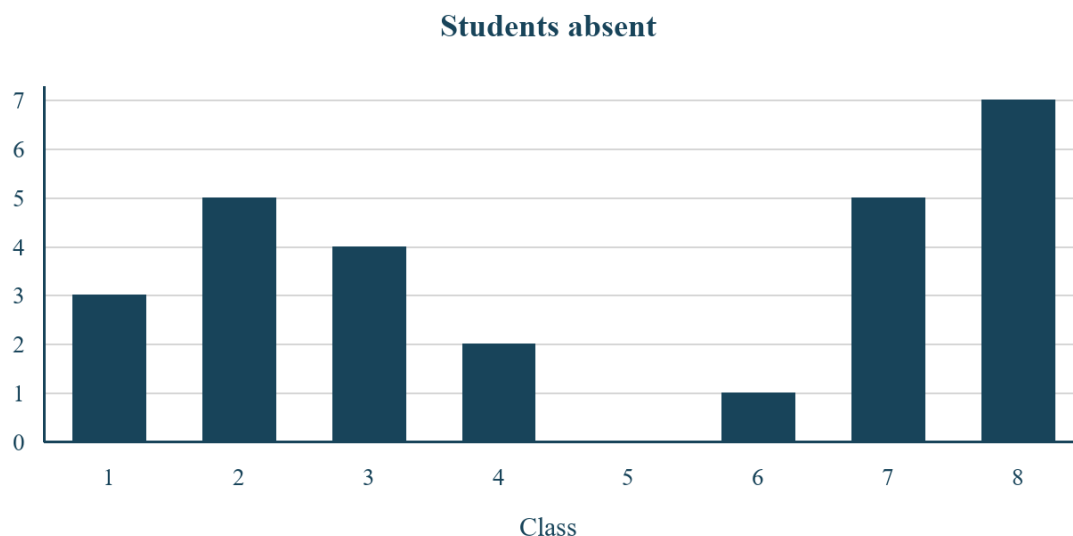
OR

Use a protractor to draw an angle of 70° . Label its vertex and arms. [2]

4. Write any three numbers that are multiples of 25 but are not multiples of 50. Explain the pattern in their last two digits. [2]

5. Use prime factorisation to decide whether 75 is divisible by 21. Give a reason. [2]

6. Lakhanpal recorded the absentees shown below. Which class had full attendance, and how many students were absent in Classes 1 and 4 together? [2]

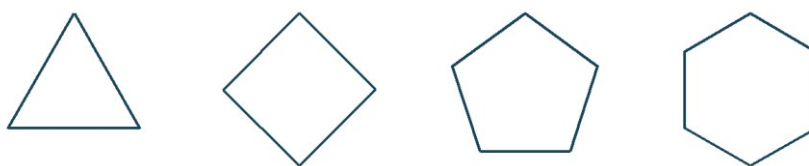


7. A four-digit locker code has digit sum 18. Its thousands digit is 5 and its units digit is 2. Find the largest possible code and explain your choice. [2]

SECTION C

Short Answer Questions | $3 \times 3 = 9$ marks

8. Study the regular polygons below.



- (i) Name the sequence formed by their numbers of sides. [1]
- (ii) Draw the next regular polygon and state its numbers of sides and corners. Explain why the two counts agree. [2]

9. In the textbook traffic example, about 1200 vehicles passed from 7–8 a.m., 1000 from 8–9 a.m. and 150 from 6–7 a.m.

- (i) Which of these intervals had the least traffic? [1]
- (ii) How many more vehicles passed from 7–8 a.m. than from 6–7 a.m.? Show the calculation. [2]

10. Use the prime-factor clues in Card A.

Card A

one factor 2	two factors 3	one factor 11
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- (i) Find the number described in Card A. [1]
- (ii) Write the multiplication and check your answer by multiplying in two stages. [2]

OR

- (i) Find the prime factorisation of 141. [1]
- (ii) Explain why your factorisation of 141 is complete, and multiply the factors to check it. [2]

SECTION D

Long Answer Questions | $3 \times 5 = 15$ marks

11. Explore the relation between triangular numbers and hexagonal numbers.

- (i) Multiply each of 1, 3 and 6 by 6, then add 1. Write the three results. [2]
- (ii) Use the next triangular number, 10, to continue the pattern. Explain the rule in words. [2]
- (iii) What is the name of the resulting number sequence? [1]

OR

Explore sums of hexagonal numbers instead.

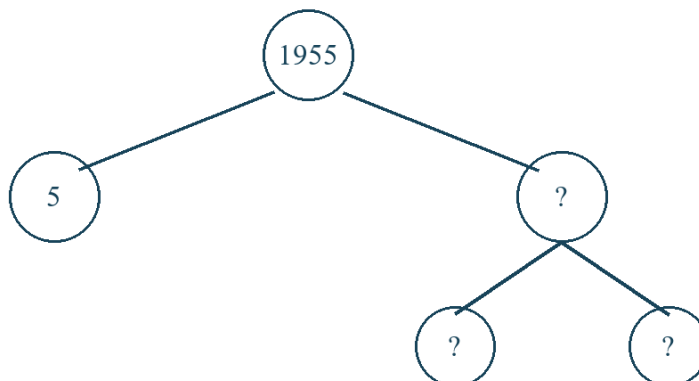
- (i) Add the hexagonal numbers successively: 1 ; $1+7$; $1+7+19$. Write the results. [2]
- (ii) Add the next hexagonal number, 37, to your last sum. Explain the number pattern in the sums. [2]
- (iii) What is the next cube after 64? [1]

12. The school activity survey recorded the preferences below.

Activity	Students
Playing	45
Reading stories	30
Watching TV	20
Listening to music	10
Painting	15

- (i) Name the most popular activity other than playing, and state its frequency. [2]
- (ii) Draw a bar graph using 1 unit length = 5 students. Include a title, labelled axes and equal-width bars. [3]

13. Use the factor information and work out the questions.



- (i) Find the prime factorisations of 40 and 231. Are they co-prime? Give a reason. [2]
- (ii) Find three prime numbers, all less than 30, whose product is 1955. Show the division steps. [3]

OR

- (i) Find the prime factorisations of 56 and 63. Are they co-prime? Give a reason. [2]
- (ii) Find the prime factorisation of 320. Show every step until only prime factors remain. [3]

SECTION E

Case Study Questions | $3 \times 4 = 12$ marks

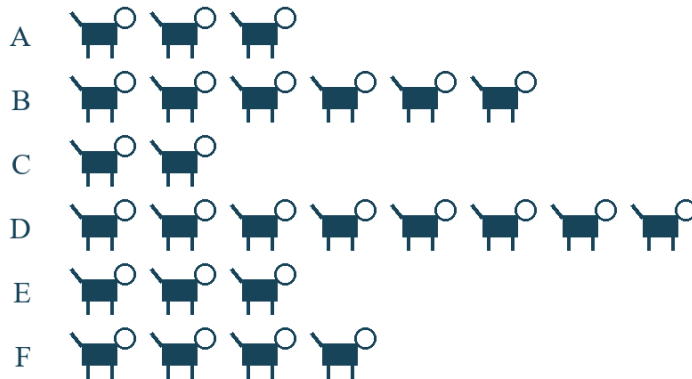
14. Case Study 1 Mudhol dogs

A village survey recorded these numbers of Mudhol dogs. Each dog symbol represents 6 dogs.

(i) How many symbols represent Village B?

[1]

Mudhol dogs by village



Key: 1 dog = 6 dogs

(ii) How many dogs are represented altogether in Villages B and D?

[1]

(iii) A vet can check 12 dogs in one session. How many sessions are needed for all the dogs in Villages A and F?

[2]

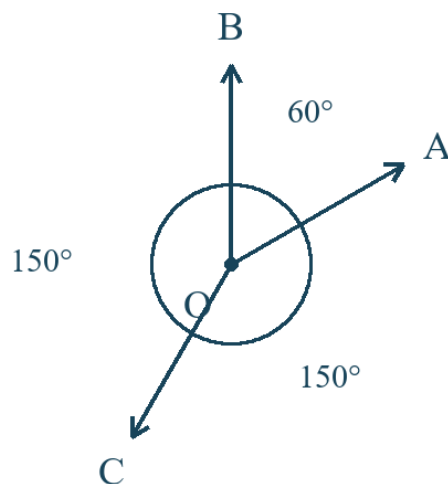
OR

(iii) Six dogs move from Village D to Village C. Write the new totals for both villages.

[2]

15. Case Study 2 Letter Y

A sign-maker uses three rays meeting at O to make a letter Y. The angles around O are 150° , 60° and 150° .



(i) Which one of these angles is acute?

[1]

(ii) What is the sum of the two obtuse angles?

[1]

(iii) Two equal right-angle turns are made in the same direction. Find the total turn and name the angle.

[2]

OR

(iii) How many right-angle turns make one full turn? Show the calculation.

[2]

16. Case Study 3 Odd-digit number club

The club is studying five-digit numbers between 35,000 and 75,000 whose digits are all odd. The cards show three possible members.

- (i) Find the largest number in this entire group, including numbers not displayed. [1]
(ii) Which displayed card has the greatest digit sum? State that sum. [1]

35111

57135

71311

- (iii) Arrange the three cards in ascending order and find the difference between the largest and smallest. [2]

OR

- (iii) Change only the units digit of 35111 to make its digit sum 17. Write the new number and check the sum. [2]