



ANGEL'S PUBLIC SCHOOL

HALF YEARLY EXAMINATION

(SAMPLE PAPER)

SESSION 2026 – 27

SUBJECT : MATHEMATICS

GRADE – VI

TIME : 03 HRS

M.M:80

GENERAL INSTRUCTIONS

- (a) This question paper contains 38 questions. All questions are compulsory.
- (b) This question paper is divided into FIVE Sections – A, B, C, D and E.
- (c) In Section–A, questions number 1 to 18 are Multiple Choice Questions (MCQs) and questions number 19 and 20 are Assertion–Reason based questions of 1 mark each.
- (d) In Section–B, questions number 21 to 25 are Very Short Answer (VSA) type questions, carrying 2 marks each.
- (e) In Section–C, questions number 26 to 31 are Short Answer (SA) type questions, carrying 3 marks each.
- (f) In Section–D, questions number 32 to 35 are Long Answer (LA) type questions, carrying 5 marks each.
- (g) In Section–E, questions number 36 to 38 are Case Study based questions, carrying 4 marks each.

SECTION – A

Multiple Choice questions

(20x1=20)

1. Which of the following is a triangular number?
(a) 10 (b) 15 (c) 16 (d) 18
2. The smallest prime number is _____.
(a) 0 (b) 1 (c) 2 (d) 3
3. Which of the following number is divisible by 5?
(a) 324 (b) 147 (c) 685 (d) 912
4. A pictograph uses _____.
(a) Symbols (b) Letters (c) Equations (d) Angles
5. The next term of the pattern 2, 6, 12, 20, 30, ____ is:
(a) 40 (b) 42 (c) 44 (d) 46
6. Which of the following is a composite number?
(a) 7 (b) 11 (c) 13 (d) 15
7. The prime factorisation of 24 is _____.
(a) $2 \times 2 \times 2 \times 3$ (b) $2 \times 3 \times 4$ (c) 6×4 (d) 8×3
8. Which graph is most suitable for comparing quantities?
(a) Bar graph (b) Circle (c) Line segment (d) Angle
9. The branch of Mathematics that studies patterns in whole numbers is called _____.
(a) Number theory. (b) number sequence (c) polygon. (d) even number
10. Which graph is best for comparing different categories of data?

- (a) Bar graph (b) Number line (c) Circle (d) Triangle
11. Which of the following number is divisible by both 2 and 3?
 (a) 14 (b) 18 (c) 25 (d) 35
12. If one picture in a pictograph represents 5 students, then 6 pictures represent:
 (a) 25 (b) 30 (c) 35 (d) 40
13. The prime factorization of 18 is ____.
 (a) $2 \times 3 \times 3$ (b) 2×9 (c) 6×3 (d) 1×18
14. Which pattern is formed by the numbers 1, 4, 9, 16, 25?
 (a) Cube numbers (b) Square numbers (c) Prime numbers (d) Even numbers
15. Find the next term: 5, 10, 20, 40, ____
 (a) 50 (b) 60 (c) 80 (d) 100
16. Which rule is followed in one sequence: 12, 15, 18, 21, 24.
 (a) Add 2 (b) Add 3 (c) Multiply by 2 (d) Subtract 3
17. Which graph is most suitable to compare the number of students in different classes?
 (a) Bar graph (b) Number line (c) Triangle (d) Circle
18. A survey collected the information of favourite fruits of students. This information is called ____
 (a) Data (b) Pattern (c) Factor (d) Multiple

DIRECTIONS:- In question numbers 19 and 20, a statement of Assertion(A) is followed by a statement of reason (R)

Read both statements carefully and decide which of the following is correct:

- (a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A).
 (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
 (c) Assertion (A) is true, but Reason (R) is false.
 (d) Assertion (A) is false, but Reason (R) is true.

19.Assertion (A): Every even number greater than 2 is a composite number.

Reason (R): Every even number greater than 2 is divisible by 2.

20. Assertion (A): A tally mark group of five is represented by four vertical lines crossed by one slant line.

Reason (R): Tally marks make counting easier.

SECTION – B

This section has 5 Very Short type questions carrying 2 marks each. (5x2=10)

21. What happens when you start to add up hexagonal numbers, i.e., take 1, $1 + 7$, $1 + 7 + 19$, $1 + 7 + 19 + 37$, ? Which sequence do you get?
22. Find the common factors of 5, 15 and 25

OR

Write any four composite numbers between 20 and 30.

23. Is the first number divisible by second ? Use the prime factorization to solve.
 343 and 17.

24. Find the difference between the largest and smallest 5-digit palindromes.
25. The time is 3:33. How many minutes later will the next palindromic time occur?

OR

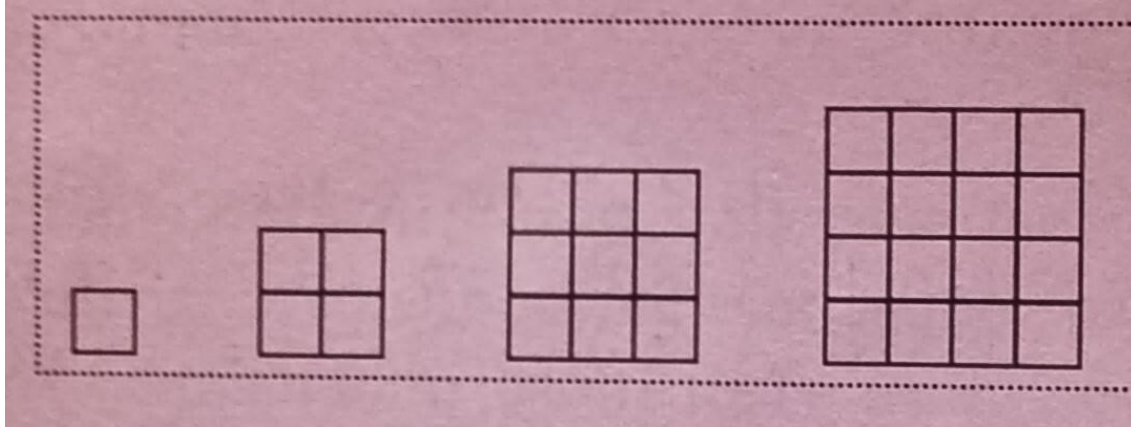
Find the remainder obtained when 2345 is divided by 5.

SECTION – C

This section has 6 Short type questions carrying 3 marks each.

(6x3=18)

26. How many little squares are there in each shape of the sequence of Stacked Squares?
Which number sequence does this give?



OR

The number 28 is a perfect number; its factors are 1, 2, 4, 7, 14 and 28. Their sum is 56 which is twice 28, find a perfect no between 1 and 10

27. Using divisibility rules, determine whether 234, 375 and 462 are divisible by 3, 5 and 9.
28. Pratibha uses the digits 4, 7, 3 and 2 and makes the smallest and largest 4 digit number with them 2347 and 7432 the difference between these two numbers is 5085 the sum of these two numbers is 9779 choose 4 digit to make:
- (a) The difference between the largest and smallest numbers is greater than 5085.
 - (b) The difference between the largest and smallest numbers is less than 5085.
 - (c) The sum of the largest and smallest numbers greater than 9779.
29. (a) Find the smallest number that is multiple of all the numbers from 1 to 10 except for 7.
(b) Find any three numbers that are multiples of 25 but not multiples of 50.

OR

A class conducted a survey on favourite seasons.

Summer 7

Winter 11

Rainy 5

Spring 7

How many students participated in the survey? Which seasons were liked by the same number of students.

30. What happens when you start to add a power of two starting with one i.e take $1, 1 + 2, 1 + 2 + 4, 1 + 2 + 4 + 8$? Now add 1 to each of these numbers what numbers do you get. Why does this happen ?

31. The number of students who like different fruits is given below:

Apple = 8

Banana = 12

Mango = 10

Grapes = 6

Orange = 14

1. Which fruit is liked by the maximum number of students?
2. Which fruit is liked the least?
3. Find the difference between most and least liked fruit.

SECTION – D

This section has 4 Long type questions carrying 5 marks each.

(5×4=20)

32. Why are 1,3,6, 10 ,15 are called triangular numbers? Why are 1,4,9 ,16 ,25 called square numbers and why are 1,8,7, 64, 125 called cubes ?

33. Find the prime factorization of the following numbers: 1728 , 1024 ,1000.

34. Are the following pairs of numbers co-prime : 527 and 589 , 899 and 1001.

35. The number of students in 5 sections of Class 6 are:

(5)

A = 45, B = 60, C = 55, D = 70, E = 50

Draw a bar graph.

1. Which section has the highest and lowest students?
2. Find the difference between highest and lowest.
3. Find total number of students.
4. If 10 more students join section C, what will be the new difference between highest and lowest?

OR

Pictograph: Number of Story Books Read by Students in a Week.

Key: $\square = 1$ book

(i) Student (a) $\square\square\square\square\square\square$

(ii) Student (b) $\square\square\square\square\square\square\square\square$

(iii) Student (c) $\square\square\square\square\square$

(iv) Student (d) $\square\square\square\square\square\square\square\square\square\square$

(v) Student (e) $\square\square\square\square\square\square$

(vi) Student (f) $\square\square\square\square\square\square\square$

1. Convert the pictograph into a complete table of values.
2. Find the total number of books read by all students.
3. Find the average (mean) number of books read.
4. Which student read more than the average?
5. If student C reads 4 more books next week, what will be the new total books read by all students?

SECTION – E

This section has 3 case based questions carrying 4 marks each.

(3x4=12)

36. A teacher writes the following number pattern on the board:

2, 3, 5, 7, 11, 13, 17, 19, ...

She tells the students that these numbers follow a special rule. Ravi says that the next number should be 21, while Meena says it should be 23. The teacher asks the class to identify the correct answer and explain the rule.

Answer the following.

(a) These numbers are: (1)

- | | |
|----------------------|----------------------|
| (i) Even numbers | (ii) Prime numbers |
| (iii) Multiples of 3 | (iv) Square numbers. |

(b) Which number comes next in the pattern? (1)

- | | | | |
|--------|---------|----------|---------|
| (i) 20 | (ii) 21 | (iii) 22 | (iv) 23 |
|--------|---------|----------|---------|

(c) Why is 21 not included? (1)

- | | |
|---------------------------|------------------------------------|
| (i) It is even | (ii) It has more than two factors. |
| (iii) It is less than 20. | (iv) It is divisible only by 1. |

(d) Which of the following is a prime number? (1)

- | | | | |
|--------|---------|----------|---------|
| (i) 25 | (ii) 27 | (iii) 29 | (iv) 33 |
|--------|---------|----------|---------|

37. Observe the pattern:

$$1 = 1^2$$

$$1 + 3 = 2^2$$

$$1 + 3 + 5 = 3^2$$

$$1 + 3 + 5 + 7 = 4^2$$

(a) Complete the next step. (1)

(b) What pattern do you observe? (1)

(c) Without adding all numbers, predict the sum of the first 10 odd numbers and justify your answer. (2)

38. Rohan has 72 marbles. He wants to divide them equally among his friends without leaving any marble. He checks different group sizes and finds that 2, 3, 4, 6, 8, 9, 12, 18, 24, 36 and 72 divide 72 exactly. His friend Aman says that 71 marbles cannot be divided equally into more than one group.

Answer the following questions.

(i) Which of the following is not a factor of 72? (1)

- | | | | |
|-------|--------|--------|--------|
| (a) 8 | (b) 12 | (c) 14 | (d) 18 |
|-------|--------|--------|--------|

(ii) How many marbles will each friend get if they are divided equally among 9 friends? (1)

- | | | | |
|-------|-------|-------|-------|
| (a) 6 | (b) 7 | (c) 8 | (d) 9 |
|-------|-------|-------|-------|

(iii) Aman's statement about 71 is correct because 71 is: (1)

- | | | | |
|---------------|-----------|----------|-------------------|
| (a) Composite | (b) Prime | (c) Even | (d) Multiple of 9 |
|---------------|-----------|----------|-------------------|

(iv) Which number is a common factor of 72 and 48? (1)

- | | | | |
|-------|-------|--------|--------|
| (a) 5 | (b) 8 | (c) 11 | (d) 13 |
|-------|-------|--------|--------|