

SUBJECT: MATHEMATICS

CLASS : VIII

General Instructions:

- (i). All questions are compulsory.
 - (ii). This question paper contains 20 questions divided into five Sections A, B, C, D and E.
 - (iii). **Section A** comprises of 10 MCQs of 1 mark each. **Section B** comprises of 4 questions of 2 marks each. **Section C** comprises of 3 questions of 3 marks each. **Section D** comprises of 1 question of 5 marks each and **Section E** comprises of 2 Case Study Based Questions of 4 marks each.
 - (iv). There is no overall choice.
 - (v). Use of Calculators is not permitted
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SECTION – A

Questions 1 to 10 carry 1 mark each.

- 1. Which of the following expressions always represents an odd number?
(a) $6n$ (b) $4n + 1$ (c) $8n + 2$ (d) $10n$
- 2. A number is written as $9k + 4$. What will be the remainder when it is divided by 9?
(a) 0 (b) 4 (c) 5 (d) 9
- 3. Which number is divisible by 6?
(a) 2451 (b) 3726 (c) 5813 (d) 7049
- 4. If a number is divisible by 8, then which of the following must be checked?
(a) Last digit (b) Last two digits (c) Last three digits (d) Digit sum
- 5. Which number leaves remainder 1 when divided by 5?
(a) 421 (b) 735 (c) 918 (d) 642
- 6. The digital root of 63855 is
(a) 6 (b) 9 (c) 3 (d) 1
- 7. Which of the following expressions represents multiples of 7 increased by 2?
(a) $7n$ (b) $7n - 2$ (c) $7n + 2$ (d) $2n + 7$
- 8. Which number is divisible by both 4 and 9?
(a) 324 (b) 198 (c) 252 (d) 441

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

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

- 9. Assertion (A):** Every number divisible by 10 is divisible by 5.

Reason (R): $10 = 5 \times 2$

- 10. Assertion (A):** A number divisible by 4 must be even.

Reason (R): Every multiple of 4 contains factor 2.

SECTION – B

Questions 11 to 14 carry 2 marks each.

11. Write the algebraic form of a number leaving remainder 5 when divided by 8.
12. State whether the number 7356 is divisible by 4 and justify.
13. Find the remainder when 946 is divided by 9.
14. Write two consecutive numbers divisible by 7.

SECTION – C

Questions 15 to 17 carry 3 marks each.

15. Find the smallest number that leaves remainder 2 when divided by 3 and remainder 4 when divided by 5.
16. Explain why every multiple of 6 is also a multiple of 3.
17. Prove that the sum of three consecutive integers is always divisible by 3.

SECTION – D

Questions 18 carry 5 marks each.

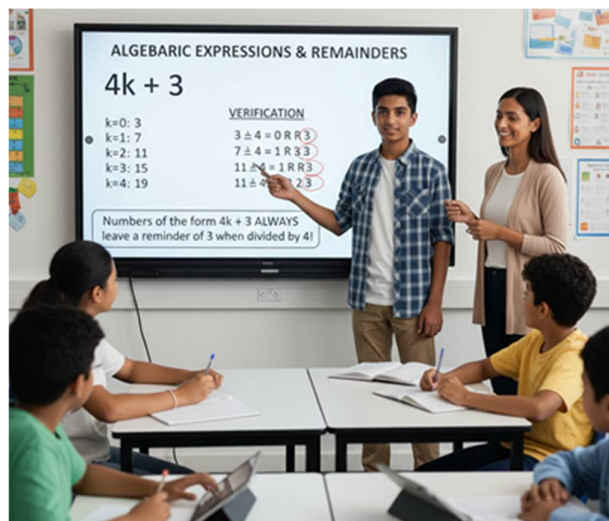
18. Explain the divisibility test for 8 with a suitable example.

SECTION – E (Case Study Based Question)

Question 19 to 20 carry 4 mark

19. Case Study-1: Algebraic Form and Remainders

During a class discussion, students explored numbers formed using algebraic expressions. Aarav wrote a number in the form $4k + 3$ and wondered why such numbers always leave the same remainder when divided by 4. His teacher explained that algebraic forms help represent infinite sets of numbers with the same remainder property. By substituting different whole numbers for k , Aarav generated several numbers and verified the division results. This activity helped students understand how algebra connects with real number behaviour.



- (a) What remainder does a number of the form $4k + 3$ leave when divided by 4?
 - (b) Write two numbers of this form.
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- (c) Check your answer by actual division.
- (d) Write the general form of numbers leaving remainder 1 when divided by 5.

20. Case Study-2: Parity and Sign Change

In a number reasoning contest, students were given four consecutive numbers and asked to apply different arithmetic operations using plus and minus signs. Surprisingly, they observed that no matter how the signs were changed, the final result always remained even. The teacher explained that changing a sign affects the value by an even number and therefore does not change the parity. This observation helped students understand the deeper concept of parity beyond simple addition.



- (a) Find the sum of four consecutive numbers starting from 12.
- (b) Change one plus sign to minus and find the new result.
- (c) State whether the result is even or odd.
- (d) Explain why the parity does not change.

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