



B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL
TERM 1 EXAMINATION (2026-27)
MATHEMATICS: SET 2

Class: VIII
Date: 09-09-26
Admission no:

Time: 3hrs
Max Marks: 80
Roll no:

General instructions:

1. The Question paper contains- five sections A, B, C, D and E. Each section is compulsory. However, there are internal choices in some questions.
2. Section A has 18 MCQ's and 02 Assertion-Reason based questions of 1 mark each.
3. Section B has 5 very short (VSA)- type questions of 2 marks each.
4. Section C has 6 short (SA)- type questions of 3 marks each.
5. Section D has 4 long (LA)- type questions of 5 marks each.
6. Section E has 3 source based/case-based questions of 4 marks each

SECTION A

1. **Q1.** According to ancient Indian texts, **100** was named as: 1M
(A) Dasha
(B) Shata
(C) Sahastra
(D) Eka
2. In Roman numerals, **214** is written as: 1M
(A) CCXXXIV
(B) CCXIV
(C) CCCXXXIV
(D) None of these
3. **Q3.** Gumugal tribe was found in which continent? 1M
(A) Asia
(B) Australia
(C) Europe
(D) None of these
4. Which among the following is a **perfect square**? 1M
(A) 140
(B) 361
(C) 96
(D) 101
5. Which of the following numbers have the digit 5 **at unit's place** in its square? 1M
(A) 14
(B) 12
(C) 15
(D) 27
6. Which among the following is a **triangular number**? 1M
(A) 15

- (B) 11
(C) 7
(D) None of these
7. The sum of all the interior angles in a triangle is: 1M
(A) 180°
(B) 360°
(C) 90°
(D) None of these
8. The diagonals of a square bisect each other at: 1M
(A) 180°
(B) 360°
(C) 90°
(D) None of these
9. The diagonals of which of the following quadrilateral **do not bisect each other**? 1M
(A) Rhombus
(B) Square
(C) Kite
(D) None of these
10. If the digital root of a number is 9, what will be the digital root of the **difference of the next number with the same digital root** from the given number? 1M
(A) 1
(B) 9
(C) 7
(D) None of these
11. If a is divisible by b and is also divisible by c, then a is divisible by the _____ of b and c. 1M
(A) H.C.F.
(B) L.C.M.
(C) Sum
(D) None of these
12. $36 \times 75 = 2625$. If 36 is increased by 1, the product will increase by 1M
(a) 25
(b) 75
(c) 60
(d) 900
13. $(a - 3b)(2a + 6b) =$ _____ 1M
(a) $2a^2 - 18b^2$
(b) $a^2 - 9b^2$
(c) $2a^2 - 9b^2$
(d) $a^2 - 18b^2$
14. $18 \times (12 - 5)$ is same as 1M
(a) $18 \times 12 + 18 \times 5$
(b) $18 \times 12 \times (-5)$
(c) $18 \times 12 - 18 \times 5$
(d) 18×8
15. The area of a square (in sq units) with side $(a + 4)$ is 1M
(a) $a^2 + 8a + 8$
(b) $a^2 + 8a + 16$
(c) $a^2 - 8a + 16$
(d) $a^2 - 8a - 16$
16. Which of the following is equal to $2^4 \times 3^2$? 1M
(a) 96
(b) 144
(c) 288

- (d) None of these
17. What is the value of $7^4 \div 7$? 1M
 (a) 7
 (b) 49
 (c) 343
 (d) 49×7
18. 81 can be expressed as: 1M
 (a) 9^2
 (b) 3^5
 (c) 27^3
 (d) 3^3
19. **Assertion (A):** 1M
 The value of 10^{-9} is $\frac{1}{10^9}$.
Reason (R):
 For any non-zero number a , $a^{-n} = \frac{1}{a^n}$.
 Choose the correct answer:
 (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
20. **Assertion (A):** 1M
 The square of every odd number is an odd number.
Reason (R):
 If a number is divisible by 2, then its square is also divisible by 2.
 Choose the correct answer:
 (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

SECTION B

21. Find the length of the side of a cube whose volume is 729 cm^3 . 2M
22. Using the **diagonal property**, construct a **rhombus** whose diagonals are of length 6 cm and 5 cm. 2M
 Or
 Construct a square with diagonals as 6 cm.
23. Write down the **digital root** of 56. Also write the **next natural number** having the same digital root. 2M
24. If the mass of the Earth is $4.97 \times 10^{24} \text{ kg}$ and the mass of the Moon is $7.35 \times 10^{22} \text{ kg}$, which is heavier and by how much? 2M

Or

Simplify:

$$\frac{2^{10} \times 2^5}{2^9}$$

25. Find the value of 37×999 using distributive property. 2M

SECTION C

26. Convert the number **1916** into the following number system: 3M
 (A) Mesopotamian
 (B) Chinese
 (C) Roman
27. Find the **smallest square number** divisible by **4, 6 and 10**. 3M
 Or
 Express the number appearing in the following statements in standard form.
 (i) The population of a city is 6150000.

(ii) The distance between Earth and Sun is about 91000000 miles.

(iii) A petri dish contains 0.000095 g of bacteria.

28. Construct a parallelogram **PQRS** such that: 3M

- **PQ = 5 cm**
- **QR = 6 cm**
- **$\angle PQR = 60^\circ$**

29. Check the divisibility of the following numbers by **9** and **5**: 3M

(A) 2165

(B) 2662

(C) 1573

Or

Find the value of A and B:

$$\begin{array}{r} \text{A B} \\ \times \text{A 7} \\ \hline 2 \ 1 \ 1 \ \text{B} \end{array}$$

30. Express the product of 2.5×10^3 and 12.5×10^{-5} in the standard form as well as usual form. 3M

31. A school is designing a rectangular flower entrance. The length of the entrance is $(3x + 5)\text{m}$ and the width is $(5x - 1)\text{m}$. The school wants to find the area using algebraic identities and polynomial multiplication. 3M

Answer the following questions:

(i) Expand $(3x + 5)(5x - 1)$.

(ii) Find the area of the entrance if $x = 2$.

(iii) If the width is increased by 4m, write the new width in algebraic form.

SECTION D

32. Shweta and her mother went to a toy shop to buy a teddy bear. The marked price of the teddy bear was **DCCX** rupees. The shopkeeper offered a discount of **CXV** rupees. Shweta wanted to calculate the final amount her mother had to pay using Roman numerals and Hindu-Arabic numbers. 5M

Answer the following questions:

(a) Convert the Roman numeral **DCCX** into Hindu-Arabic numerals.

(b) Convert the Roman numeral **CXV** into Hindu-Arabic numerals.

(c) Find the final cost of the teddy bear after deducting the discount. Write it in Chinese numerals.

(d) Write the final cost obtained in part (c) back in **Roman numerals**.

Or

The school library has **CCL** storybooks in the junior section. During the annual reading campaign, **CCXXIV** books were issued to students. The librarian wanted to find the number of books still available using different number systems.

Answer the following questions:

(a) Convert the Roman numeral **CCL** into Hindu-Arabic numerals.

(b) Convert the Roman numeral **CCXXIV** into Hindu-Arabic numerals.

(c) Find the number of books remaining in the library. Write the answer in **Chinese numerals**.

(d) Write the remaining number of books in **Roman numerals**.

33. (a) By what number will you multiply 100 to make it a perfect cube? Also find the cube root of the product. 5M

(b) By what number will you divide 1100 to make it a perfect square?

34. Solve the following cryptarithms: 5M

(i) **UT $\times$ 3 = PUT**

(ii) **PP $\times$ QQ = PRP**

(iii) **EF $\times$ E = GGG**

(iv) **WOW $\times$ 5 = MEOW**

35. If $(x + y)^2 = 484$ and $(x - y)^2 = 100$, answer the following questions. 5M

(a) Using the identity $(a + b)^2 - (a - b)^2 = 4ab$, find the value of xy .

(b) Hence, find the value of $x^2 + y^2$.

(c) Find the value of $(x + y)(x - y)$.

Or

If $p - q = 6$ and $p^2 + q^2 = 116$, answer the following questions:

(a) Using the identity

$$(p - q)^2 = p^2 - 2pq + q^2,$$

find the value of pq .

(b) Find the value of $(p + q)^2$.

(c) Hence, find the value of $p^2 - q^2$.

SECTION E

36. The Eco Club of a school is planning a flower garden in the shape of a **parallelogram**. The gardener measures two adjacent sides as **14 m** and **18 m**. One interior angle is **105°**. The students are asked to use the properties of a parallelogram to answer the following questions. 4M

Answer the following:

- (a) What is the length of the side opposite the **14 m** side?
- (b) Find the measure of the angle adjacent to the **105°** angle.
- (c) What is the measure of the angle opposite the **105°** angle?
- (d) State **two properties of a parallelogram** that helped you answer the above questions.
37. Astronomers often use **scientific notation (standard form)** to represent very large numbers. The diameter of the Earth is approximately $1.2756 \times 10^7 \text{ m}$, while the diameter of the Sun is approximately $1.4 \times 10^9 \text{ m}$. Scientific notation makes it easier to compare such huge measurements. 4M
- Answer the following questions:
- (i) Express the diameter of the Earth, $1.2756 \times 10^7 \text{ m}$, in ordinary form.
- (ii) Express the diameter of the Sun, $1.4 \times 10^9 \text{ m}$, in ordinary form.
- (iii) Find the ratio of the diameter of the Sun to the diameter of the Earth in standard form.
- (iv) Approximately how many times is the diameter of the Sun greater than the diameter of the Earth?
38. A teacher visited a stationery store to buy **28 notebooks**. Each notebook originally cost **₹12**, but the shopkeeper offered a **discount of ₹2 per notebook**. Instead of calculating the total cost in two separate steps, the teacher used the **distributive property** to find the final amount quickly. 4M
- Answer the following questions:
- (i) Write the expression representing the total cost before applying the distributive property.
- (ii) Use the distributive property to simplify the expression.
- (iii) Find the total amount the teacher has to pay.
- (iv) How much money did the teacher save because of the discount?

*****BEST OF LUCK*****