27th MVI
(MATHEMATICS)

Time Allowed 1 hour | Maximum Marks : 100

Read the following instructions carefully before you begin to answer the questions.

1. This booklet contains 50 questions in all.
2. All questions are compulsory and each question carries 2 marks.
3. Before you start to answer the questions you must check up this booklet and ensure that it contains all the pages 6 (Six7) and see that no page is missing or repeated. If you find any defect in this Booklet, you must replace it immediately.
4. There will **NOT** be any negative marking for wrong answers.
5. You are required to fill the information on the answer sheet which you will get in the examination hall by **H.B. pencil or BALL point pen(Blue or Black).**
6. **Answer Sheet** and **Question Paper** will be supplied in examination hall. After the test is over, you should hand over the answer sheet to the invigilator before leaving the room.
7. You should write your **Name, Roll No., School name** carefully on the space provided in the answer sheet. Otherwise you will be awarded **ZERO** mark.
8. If you wish to change your answer, **ERASE** completely the darkened circle by using an **ERASER** and then blacken the new circle. If not erased completely, smudges will be left on the erased circle and the question will be read as having two answers and will be ignored for giving any credit. (only for pencil users)
9. Answer the questions as quickly and as carefully as you can. Some questions may be difficult and others easy. Do not spend too much time on any question.
10. You are not allowed to leave the examination hall until you are advised to do so by the invigilator.

1. The numeral for the number name : Ninety two million, three hundred forty .
   (A) 92,000,340 (B) 92,340
   (C) 92,00,340 (D) 92,03,40
2. The smallest four digit number which is exactly divisible by 83 is
   (A) 1000 (B) 1083
   (C) 1079 (D) 1076
3. If 9th of the month falls on the day preceding Sunday then on what day will 1st of month fall?
   (A) Friday (B) Saturday
   (C) Sunday (D) Monday
4. The number 289 can be represented by a 17x17 square grid. Out of the following numbers, which number cannot be represented by such a square grid?
   (A) 144 (B) 729
   (C) 422 (D) 441
5. The value of $\frac{2^5 \times 4^6}{8^7}$
   A) $\frac{1}{16}$ (B) $\frac{1}{8}$
   (C) $\frac{1}{4}$ (D) 1
6. (I) The quotient of two integers is always integer.
   (II) The product of 1 and any integer is the integer itself.
   (III) Any power of a number with 2 or 5 or 6 in the ones place is again number with 1 or 5 or 6 respectively in the one's place.
   Which of the following statement is/ are correct ?
   (A) I & II (B) I only
   (C) II only (D) II & III
7. On the number line, the integer 5 is located
   (A) to the left of 0
   (B) to the right of 0
   (C) to the left of 1
   (D) to the left of -2
8. When a negative integer is substracted from another negative integer, the sign of the result
   (A) is always negative
   (B) is always positive
   (C) is never negative
   (D) depends on the numerical value of the integers
9. Which of the following shows the maximum rise in temperature?
   (A) 0^0 to 10^0 C (B) -4^0C to 8^0C
   (C) -15^0C to -8^0C (D) -7^0C to 0^0C

SPACE FOR ROUGH WORK

43. If $2^x \times 8^{1/5} = 2^{1/5}$, then x is equal to
   (A) $\frac{1}{5}$ (B) $-\frac{1}{5}$
   (C) $\frac{2}{5}$ (D) $-\frac{2}{5}$
44. A number exceeds 20% of itself by 40. The number is
   (A) 50 (B) 60
   (C) 80 (D) 320
45. Consider the following numbers
   I. 247 II. 203
   Which of the above numbers is/are prime?
   (A) Only I (B) Only II
   (C) Both I & II (D) Neither I or II
46. What is the number whose 20% is 30% of 40?
   (A) 90 (B) 80
   (C) 60 (D) 50
47. What is the ratio between times taken by a train 240m long to cross an electric pole and a bridge of 80m length?
   (A) 2:3 (B) 3:4
   (C) 4:5 (D) 5:6
48. Three lines intersect each other in pairs. What is the number of angles so formed?
   (A) 3 (B) 6
   (C) 9 (D) 12
49. If the L.C.M. of two numbers, say 'a' and 'b' is 'c' then
   (A) 'c' is a factor of 'a' and 'b'.
   (B) 'c' is a product of a and b
   (C) 'c' is a multiple of a and b
   (D) c is the sum of a and b.
50. Consider the statement about the co-prime:
   I. Any two distinct prime numbers are co-prime.
   II. Any two consecutive numbers are co-prime
   III. If two numbers are co-prime, then they have no common factor other than 1.
   Which of the following is/are true?
   (A) I only (B) I & II
   (C) II & III (D) I, II & III

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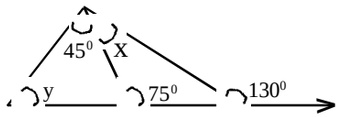
35. Which of the following may be lenghts of three sides of a triangle?
(A) 1,2,3 (B) 9,6,24
(C) 3,7,9 (D) 3,4,7

36. The angles of a triangle are in the ratio 1:3:5. Find the measure of the third angle.
(A) 100^0 (B) 110^0
(C) 90^0 (D) 50^0

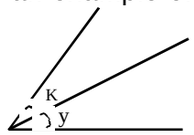
37. Consider the figure.



The value of x+y is
(A) 65^0 (B) 75^0
(C) 85^0 (D) 90^0

38. If one angle of a triangle is equal to the sum of the other two, then the triangle is
(A) Right triangle
(B) Obtuse angle
(C) Equilateral triangle
(D) None of these

39. Angle K and y are an example of ____angles.



(A) Vertical (B) Right
(C) Adjacent (D) Linear pair

40. There would be 10% loss if a toy is sold at RS 10.80 per piece. At what price should it be sold to earn a profit of 20%?
(A) Rs 12 (B) Rs 12.96
(C) Rs 14.40 (D) None

41. Two numbers are in the ratio of 6:11. Then the ratio of their reciprocal is .
(A) 1:66 (B) 66:1
(C) 11:6 (D) 6:11

42. Simplify :

$$\frac{6\left\{1\frac{1}{2}\left(\frac{3}{4}-\frac{1}{2}\right)\right\}}{5-\left\{1\frac{1}{2}-\left(\frac{3}{4}-\frac{1}{2}\right)\right\}}$$

(A) $1\frac{2}{15}$ (B) $2\frac{1}{15}$

(C) $3\frac{2}{15}$ (D) $\frac{3}{5}$

SPACE FOR ROUGH WORK

10. Unique factorization theorem states that
(A) every composite number can be expressed uniquely as a product of its factors except for the order in which the factors occurs.
(B) every composite number can be expressed uniquely as a product of its prime factors except for the order in which the prime factors occur.
(C) every number can be expressed as a product of its prime factors.
(D) none of the above

11. The H.C.F. and L.C.M. of two numbers are 50 and 250 respectively. If the first number is divided by 2, the quotient is 50. The second number is
(A) 50 (B) 100
(C) 125 (D) 250

12. H.C.F. of 4 x 27 x 3125, 8 x 9 x 25 x 7 and 16 x 81 x 5 x 11 x 49 is :
(A) 180 (B) 360
(C) 540 (D) 1260

13. The L.C.M. and H.C.F. of the numbers 28 and 42 are in the ratio
(A) 6:1 (B) 2:3
(C) 3:2 (D) 7:2

14. The least number of square tiles required to pave the celling of a room 15m 17cmlong and 9m 2cm broad is :
(A) 902 (B) 656
(C) 738 (D) 814

15. The L.C.M. of three different number is 120 which of the following cannot be their H.C.F?
(A) 8 (B) 12
(C) 24 (D) 35

16. A certain amount was divided between Raju and Rakesh in the ratio of 4:3. If Rakesh's share was Rs 2400, the total amount was
(A) Rs 5600 (B) Rs 3200
(C) Rs 9600 (D) Rs 16800

17. Divide Rs 630 in the ratio of 7:11
(A) 240 & 385 (B) 245 & 380
(C) 245 & 385 (D) 240 & 380

18. If 0.75 : *x* : 5 : 8, what is equal to
(A) 1.12 (B) 1.2
(C) 1.25 (D) 1.30

19. If 76 is divided into four parts proportional to 7,5,3,4, then the smallest part is
(A) 12 (B) 15
(C) 16 (D) 19

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20. If Ram, Harish and Suresh can do a piece of work in 15 days , 10 days and 6 days respectively how long at it together ?

(A) 3 days (B) $3\frac{1}{2}$ days

(C) $3\frac{9}{20}$ days (D) $3\frac{3}{20}$ days

21. A number is increased by 10% and then decreased by 10%. Finally the number is
(A) does not change
(B) decreases by 1%
(C) increases by 1%
(D) increases by 0.1%

22. An article when sold for Rs 840 earns a profit which is double the amount of loss when the same article is sold for Rs 600. The cost price of the article is
(A) Rs 500 (B) Rs 680
(C) Rs 720 (D) Rs 750

23. In what time will the simple interest on Rs 8000 at 4% per annum be Rs 640?
(A) 2 years (B) 3 years

(C) $2\frac{1}{2}$years (D) $1\frac{1}{2}$years

24. What sum of money at 6% per annum for $4\frac{1}{2}$ years will amount to Rs3810?
(A) 2500 (B) 2750
(C) 3500 (D) 3000

25. The value of $x^3 + b^3 + c^3 - 3abc$
(A) 18 (B) 52
(C) 53 (D) 54

26. Substract $9x^4 - 7x^3 + 14x - 13$ from the sum of $7x^4 + 4x^3 - 7x^2 - 5x + 3$ and $8x^4 - 7x^3 + 13x^2 - 6x + 7$.
(A) $6x^4 + 5x^3 + 13x^2 - 7x + 23$
(B) $6x^4 + 5x^3 - 2x^2 - 25x + 23$
(C) $6x^4 + 5x^3 + 13x^2 - 25x + 23$
(D) $6x^4 - 11x^3 + 13x^2 - 25x + 23$

27. The successor and predecessor of the natural number 'n' are respectively
(A) *n+1, n-1* (B) *n-1, n+1*
(C) *1-n, 1+n* (D) *n+2, n-2*

28. Match the following :

CODE I (verbal statement)	CODE II (Mathematical expression)
P. The sum of x and 3	(i) 3p+ 5
Q. P is multiplied by 3 and then 5 is added to the product.	(ii) x+3

SPACE FOR ROUGH WORK

R. The excess of (iii) $\frac{1}{2}x + 20$ 20 over half of x.

S. (-p) is multiplied by (-3) and substract (-5) from the product. (iv) 3p - 5

(A) P - (i), Q - (ii), R - (iii), S - (iv)
(B) P - (ii), Q - (i), R - (iii), S - (iv)
(C) P - (ii), Q - (iv), R - (iii), S - (i)
(D) P - (i), Q - (ii), R - (iv), S - (ii)

29. The number of terms in the expression

$x^2 \times y + x^3 \times y^2 \times z^2 \div 2 - 6 \times x \times y \times z^4 + 3 \times x \times y \times z$

(A) 14 (B) 5
(C) 4 (D) 6

30. Which description is a correct way to solve the equation ?
3x + 8 = 17
(A) Divide 3 from both sides, then substract & from both sides.
(B)Substract 8 from both sides, then divide both sides by 3.
(C) Substract 17 from both sides, then divide both sides by 8.
(D) Multiply both sides by 3, then substract 8 from both sides.

31. Solve: 3(x-3) = 4(2x+1).
(A) $\frac{-5}{13}$ (B) 1
(C) -1 (D) $\frac{-13}{5}$

32. Twice the number decreased by 22 is 48. The number is
(A) 24 (B) 35
(C) 12 (D) 70

33. The measures of two complementary angles are in the ratio 3:2. The angles are
(A) 54^0 & 36^0 (B) 50^0 & 40^0
(C) 45^0 & 45^0 (D) 60^0 & 30^0

34. Which of the following statement is **not** true?
(A) Two parallel lines are everywhere the perpendicular distance equal.
(B) If l || m and m || n, then l || n
(C) A pair of co-interior angles are complementary then the two lines are parallel.
(D) None of these.

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