

** SINDHI HIGH SCHOOL, HEBBAL**

**ANNUAL EXAMINATION [2023-24]**

**SUBJECT: MATHEMATICS**

**Class: IX Max Marks: 80**

**Date: 19/02/2024 Reading Time:8:30-8:45am**

**No of Sides: 05 Writing Time: 8:45-11:45am.**

**GENERAL INSTRUCTIONS:**

* This Question Paper has 5 Sections A, B, C, D and E.
* Section A has 20 MCQs carrying 1 mark each
* Section B has 5 questions carrying 02 marks each
* Section C has 6 questions carrying 03 marks each.
* Section D has 4 questions carrying 05 marks each.
* Section E has 3 case based integrated units of assessment (04 marks each) with sub- parts of the values of 1, 1 and 2 marks each.
* All Questions are compulsory. However, an internal choice in 2 Qs of 5 marks, 2 Qs of 3 marks and 2 Questions of 2 marks has been provided.
* Draw neat figures wherever required. Take π =22/7 wherever required if not stated.

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|  | **Section A** |  |
|  | **Section A consists of 20 questions of 1 mark each.** |  |
| 1 | The decimal form of a rational number is  a)Terminating b)Nonterminating recurring c) Nonterminating nonrecurring d) Both (a) and (b) | **1** |
| 2 | The degree of the polynomial 2x2 -3x -7 is  a) 2       b) 1 c)0           d)7 | **1** |
| 3 | One of the factors of the polynomial x2 -4 is  a)x2 +4 b) x-4    c) x-2 d) | **1** |
| 4 | Equation of y-axis is    a)x=0 b) y=0 **c)** x+y=0 d) x-y=0 | **1** |
| 5 | The equation y=3 is  a)parallel to y-axis b) parallel to x-axis  c)cuts positive x and y axis d)cuts negative x and y axis | **1** |
| 6 | Which of the following is a point in the first quadrant?  a)(-4,3) b)(-3,-4) c)(4,3) d)(4,-3) |  |
| 7 | The class mark of the class 200-300 is  a) 301 b)300 c) 200 d) 250 | **1** |
| 8 | The area of an equilateral triangle of each ‘a’ is  a) a2 b) a2 c) 4a2 d) | **1** |
| 9 | Which of the following needs a proof?  a)Theorem      b)Axiom  c)definition d) Postulate | **1** |
| 10 | If the exterior angle of a cyclic quadrilateral is 600  then the interior opposite angle is  a)1200 b)1350  c)600 d)1800 | **1** |
| 11 | In the triangle ABC , E and F are midpoints of the sides AB and AC respectively. If EF is 6cm then BC is  a) 10cm b)3cm c) 6cm d)12cm | **1** |
| 12 | If complementary angles are in the ratio 2:3 then the smallest of these angles is  a)540 b)360 c)900 d)300 | **1** |
| 13 | Which of the following figure is true    a) ABC ADC b)ABD BCD c)BAC ADC  d)CBA ADC | **1** |
| 14 | In the given figure find ACB    1200 b)800  c) 300 d) 1100 | **1** |
| 15 | The diagonals of rectangle are  a) equal and bisect at 900 b) unequal do not bisect at 900  c) equal but do not bisect at900 d)Unequal and bisect at 900 | **1** |
| 16 | The measure of angle in the semicircle is  a) 1200 b)900 c)1000 d) can be any measure | **1** |
| 17 | In the isosceles triangle ABC , AB= AC= 4cm. B=500. The measure of angle A is  a) 650 b) 800 c)500 d) 40 | **1** |
| 18 | AB is a chord in a circle of centre O and OM is perpendicular to AB. If MB is 8cm then length of AB is  a)8cm b)4cm c)6cm d) 16cm . | **1** |
| 19 | **Assertion(A):** If the area of circle of radius ‘r’ is’ x’sq.m then the surface area of sphere of radius ‘r’ is 4x sq.m  **Reason( R):** Surface area of a sphere of radius ‘r’ is equal to four times the area of a circle of radius ‘r’  a)Both Assertion(A) and Reason (R) are true and  Reason( R)  is the correct explanation of (A)  b)Both Assertion(A) and Reason (R) are true and  Reason( R)  is not the correct explanation of (A)  c)Assertion(A)  is true and  Reason( R)  is false  d)Assertion(A)  is  false and  Reason( R)  is true | **1** |
| 20 | Assertion(A): The quadrilateral formed by joining the midpoints of the sides of a quadrilateral ABCD , taken in order is a rectangle.  Reason( R): The diagonals of ABCD must be perpendicular to each other.  a)Both Assertion(A) and Reason (R) are true and  Reason( R)  is the correct explanation of (A)  b)Both Assertion(A) and Reason (R) are true and  Reason( R)  is not the correct explanation of (A)  c)Assertion(A)  is true and  Reason( R)  is false  d)Assertion(A)  is  false and  Reason( R)  is true | **1** |
|  | **SECTION-B** |  |
|  | **Section B consists of 5 questions of 2 marks each** |  |
| 21 | Represent on a number line  OR  Express 1.2 in p/q form where p and q are integers q0 | **2** |
| 22 | If (2,k) is a point on the line 3x-6y+7=0 then find the value of “k” | **2** |
| 23 | If p(x) =2x+4 , find p(1) +p(-1) | **2** |
| 24 | Find the area of a triangle of sides 3cm, 4cm and 5cm using Heron’s formula. | **2** |
| 25 | If a=b and c=d , prove that a+c= b+d . Mention the axiom used..  OR  In the given figure if AC=BD, prove that AD=BC | **2** |
|  | **SECTION-C** |  |
|  | **Section C consists of 6 questions of 3 marks each** |  |
| 26 | .If 3x-5y=3 and xy=10 then find the value of 27x3 -125y3  OR  If x2 is a factor of 2x3 ax2 + x+ 2 then find the value of ‘a’ | **3** |
| 27 | Find 3 points passing through the line 2x-y+3=0. | **3** |
| 28 | Write the coordinates of following points  i)Lying in the first quadrant and at equidistant fron both axes.  ii)Lying on x-axis  iii)Lying on y-axis  OR  Write the points where the line x+y-3=0 crosses x-axis and y-axis | **3** |
| 29 | Write any three Euclid’s axioms | **3** |
| 30 | Find the value of x and y in the given figure, if m n and a b | **3** |
| 31 | Prove that sides opposite to equal angles of an isosceles triangle are equal. | **3** |
|  | **SECTION-D** |  |
|  | **Section D consists of 4 questions of 5 marks each** |  |
| 32 | ABCD is a quadrilateral in which P,Q,R and S are midpoints of the sides AB,BC,CD and DA . AC is diagonal.  Prove that  i)SR AC ,SR= AC  ii)PQ=SR  iii)PQRS is a parallelogram.  OR  In the given figure , AD and BE are medians of ABC and BE DF. Prove that CF= AC | **5** |
| 33 | Angle subtended by an arc at the center is double the angle subtended by it at any point on the remaining part of the circle. | **5** |
| 34 | Simplify: +  OR  .  Find the values of a and b = 2a – 11b | **5** |
| 35 | Draw frequency polygon with histogram for the below frequency table  `   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-62 | 60-70 | | Number of students | 5 | 10 | 4 | 6 | 7 | 3 | 2 | | **5** |
|  | **SECTION-E** |  |
|  | **Section E consists of 3 case study based questions.** |  |
| 36 | The collection of numbers is called the number system. These numbers are of different types, such as natural numbers, whole numbers, integers, rational numbers and irrational numbers. C:\Users\Mahesh\AppData\Local\Microsoft\Windows\INetCache\Content.Word\WhatsApp Image 2024-02-12 at 21.44.22_842be80b.jpg  Answer the following questions  i)Write two example for non- terminating recurring numbers.  ii)Write two example for non -terminating nonrecurring numbers.  iii)Is the sum of two irrationals always irrational? Explain with example.  OR  Is the product of two irrationals always irrational? Explain with example. | **4** |
| 37 | Traffic cone are used outdoor during road work in various situation. Such as traffic redirection, advance warning and hazards of the prevention traffic.  A traffic cone has the radius 8cm and height 6cm.  Answer the following questions based on the above information.  i)What is the slant height of the traffic cone?  ii)What will be the volume of each traffic cone?  iii)What will be the total surface area of the traffic cone?  OR  Find the price of painting the curved surface area of 20 such traffic cone, if the price of painting per sq.cm Rs.8 | **4** |
| 38 | In a school canteen pizza and burgers are available as refreshment. Sumit purchased two pizzas and one burger and paid Rs.250  i)Form the linear equation in two variables for the above situation  ii)Find two solution of above linear equation.  iii)If cost of one pizza is Rs. 10 more than the cost of a burger, what will be linear equation in two variables. If cost of one burger is Rs. 150 find the cost of two pizza  OR  Graphically, what does the equation obtained in (iii) represent?. How many solutions does this equation has? | **4** |

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