**** **SINDHI HIGH SCHOOL, HEBBAL**

**RE - EXAMINATION [2023-24]**

**SUBJECT: MATHEMATICS BASIC**

**Class: IX Max Marks: 80**

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

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

**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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| Sl.No | **Section A has 20 MCQs carrying 1 mark each** | Marks |
| 1. | Given a polynomial p(t) = t4 – t3 + t2 + 6, then p(–1) is  (a) 6 (b) 9 (c) 3 (d) – 1 | **1** |
| 2. | Zero of the polynomial p(x) = 2 – 3x is  (a) 2 (b) – 3 (c)  (d) | **1** |
| 3. | Ordinate of a point is positive in  (a) I and II quadrants. (b) I and III quadrants.  (c) II and III quadrants. (d) I and IV quadrants. | **1** |
| 4. | The point which lies on y-axis at a distance of 5 units in the negative direction of y-axis is  (a) (0, 5) (b) (5, 0) (c) (0, –5) (d) (–5, 0) | **1** |
| 5. | Double of the same things are  (a) equal (b) unequal (c) halves of same thing (d) double of same thing | **1** |
| 6. | Which of the following needs a proof ?  (a) Theorem (b) Axiom (c) Definition (d) Postulate |  |
| 7. | To solve the equation a – 20 = 15, we use Euclid’s....  (a) postulate (b) axiom  (c) statement (d) Theorem | **1** |
| 8. | In the given figure, a pair of adjacent angles is    (a) ∠COA and ∠BOA (b) ∠COA and ∠BOC  (c) ∠AOB and ∠BOC (d) none of these | **1** |
| 9. | In the given figure, if ∠AOC = 50°, then (∠AOD + ∠COB) is equal to    (a) 100° (b) 140° (c) 260° (d) 130° | **1** |
| 10. | In the given figure, the congruency rule used in proving  ΔACB ≅ ΔADB is    (a) ASA (b) SAS  (c) AAS (d) none of these | **1** |
| 11. | In two triangles, ABC and PQR, ∠A = 30°, ∠B = 70°, ∠P = 70°, ∠Q = 80° and AB = RP, then  (a) ΔABC ≅ PQR (b) ΔABC ≅ ΔQRP  (c) ΔABC ≅ ΔRPQ (d) ΔABC ≅ ΔRQP | **1** |
| 12 | Which of the following is not a criterion for congruence of triangles?  (a) SAS (b) ASA  (c) SSA (d) SSS | **1** |
| 13. | Given a quadrilateral ABCD such that ∠C = 90° and diagonal AC and BD bisect each other at O, then the quadrilateral is a  (a) rhombus (b) trapezium  (c) parallelogram (d) rectangle | **1** |
| 14 | In a quadrilateral ABCD, equal diagonals AC and BD intersect at P, such that AP = PC and BP = PD, also ∠BPC = 90°, then quadrilateral is exactly  (a) a parallelogram (b) a square  (c) a rhombus (d) a Trapezium | **1** |
| 15 | Class mark of the class 70–80 is  (a) 65 (b) 85  (c) 75 (d) 150 | **1** |
| 16 | Given two concentric circles with centre O. A line cuts the circles at A, B, C, D respectively. If AB = 10 cm, then length CD is  (a) 5 cm (b) 10 cm  (c) 7.5 cm (d) 20 cm | **1** |
| 17 | The region between a chord and either of the arcs is called  (a) an arc (b) a sector  (c) a segment (d) a semicircle | **1** |
| 18 | In the given figure, value of y is    (a) 35° (b) 140° (c) 70° + x (d) 70° | **1** |
|  | **Direction for questions 19 & 20: In question numbers 19 and 20, a statement of Assertion (A) is followed by a statement of Reason**  **(R). Choose the correct option** |  |
| 19 | **Assertion (A**): If the diagonals of a parallelogram ABCD are equal, then ∟ABC = 90o  **Reason (R**): If the diagonals of a parallelogram are equal, it becomes a rectangle.  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. | **1** |
| 20 | Assertion (A): √5 is an irrational number.  Reason (R): Square root of a positive integer which is not a perfect square is an irrational number.  (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**.** | **1** |
|  | **SECTION- B has 5 questions carrying 02 marks each.** |  |
| 21. | If – 1 is a zero of the polynomial p(x) = ax3 – x2 + x + 4, then find the value of ‘a’.  **OR**  Find the value of the polynomial p(x) = x3-2x2+2x+2 at x=2 | **2** |
| 22. | Draw the graph using the values of x, y as given in the table and write its linear equation. | **2** |
| 23. | The cost of a notebook is 3 times the cost of a calendar. Write a linear equation in two variables to represent this statement. | **2** |
| 24. | Find whether the given equation have x = 2, y = 1 as a solution:  2x + 5y = 9 | **2** |
| 25. | In the given figure if x : y = 2 : 3, find the value of x and y. **OR**  In the given figure, p | | q. Find the value of x. | **2** |
|  | **SECTION –C has 6 questions carrying 03 marks each** |  |
| 26. | If f(x) = 5x2 – 4x + 5, find f(1) + f(–1) + f(0)  **OR**  Find the value of k, if x + k is the factor of the polynomials  x3 + kx2 – 2x + k + 5 | **3** |
| 27. | Find the solution of the linear equation x+2y=8 which represents a point on (i) The x-axis (ii) The y-axis | **3** |
| 28. | Write the coordinates of the following points: (i) lying on neither axes at a distance of 5 units from the x-axis and 3 units from the y-axis. (ii) lying on y-axis with the y-coordinate (–7). (iii) lying on the x-axis with x-coordinate 8. | **3** |
| 29. | In the given figure PR = QS, then show that PQ = RS. State the postulate/axiom is used for the same. | **3** |
| 30. | Prove that angles opposite to equal sides of an isosceles triangle are equal. | **3** |
| 31. | The perimeter of an isosceles triangle is 32 cm. The ratio of equal side to the base is 3 : 2 Using Heron’s formula, find the area of triangle.  **OR**  The perimeter of a triangular garden is 90 cm and its sides are in the ratio 2:3:4 Using Heron’s formula, find the area of triangular garden | **3** |
|  | **SECTION-D has 4 questions of 05 marks each** |  |
| 32. | Find the value of if  **OR** | **5** |
| 33. | https://search-static.byjusweb.com/question-images/byjus/infinitestudent-images/ckeditor_assets/pictures/192167/content_65.pngIn ΔABC, E is the mid -point of median AD such that BE produced meets AC at F. If AC = 10.5 cm, then Find AF. | **5** |
| 34. | Prove that the angle subtended by an arc at the Centre is double the angle subtended by it at any point on the remaining part of the circle. | **5** |
| 35. | The heights (in cm) of employees in an office are as follows:    Draw the histogram and frequency polygon of the above table.  **OR**  The school fee of different schools in a city is as follows   |  |  | | --- | --- | | Monthly school fee (thousand) | No. of schools | | 0-20  20-40  40-60  60-80  80-100 | 5  8  6  4  2 |   Draw the histogram and frequency polygon of the above table. | **5** |
|  | **SECTION-E** |  |
| 36. | Reeta was studying in the class 9th C of St. Surya Public school, Mehrauli, New Delhi-110030 Once Ranjeet and his daughter Reeta were returning after attending teachers' parent meeting at Reeta's school. As the home of Ranjeet was close to the school so they were coming by walking. Reeta asked her father, "Daddy how old are you?" Ranjeet said, "Sum of ages of both of us is 55 years, After 10 years my age will be double of you.   1. What is the First equation formed? 2. What is the second equation formed? 3. If the ratio of age of Reeta and her   father is 3 : 7 then what is the age of  Reeta's father in years?  **OR**  If Reeta’s age is 20 what will be her father’s age? How many possible solutions can be there for a linear equation in 2 variable? | **1**  **1**  **2** |
| 37. | The front compound wall of a house is decorated by wooden spheres of diameter 21 cm, placed on small supports as shown in figure. 25 such spheres are used for this purpose and are to be painted silver. Each support is a cylinder and is to be painted black**.**  i) what will be the total surface area of  the spheres all around the wall?  **OR**  What will be the volume of total spheres all around the wall?   1. Find the cost of paint required to paint all spheres if this paint costs 20 paise per cm2. 2. How much silver paint in litres is required for painting the spheres if the paint required is 3 ml per cm2? | **2**  **1**  **1** |
| 38 | Two friends Pankaj and Siddharth went to an antique store to purchase 34 old coins of single type. They  finally short-listed coins of two types A and B and decided to choose the one having lowest price. On being asked the price, the shopkeeper told them coin ‘A’ is priced at  24 each and coin B is priced at  35 each. Pankaj helped Siddharth to select the type of coin on the basis of price. They bought 34 coins. They further decided to distribute coins among their 32 friends.  (i) Which type do you think they finally  bought based on lowest price?  (ii)What is the total price they paid  to the shopkeeper?  **OR**  What is the total price they had to pay if they had bought coin with higher price?  (iii) Find the number of coins each of which their friends received. | **1**  **2**  **1** |

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