NORTH-EX PUBLIC SCHOOL
(Senior Secondary, Affiliated To CBSE)
School Block, Jain Nagar, Sector-38, Rohini, Delhi – 81
FINAL EXAMINATION, 2019-20
SUBJECT – MATH
CLASS -IX

TIME : 3 hrs **MM : 80**

General Instructions:
All the questions are compulsory. There are four sections. Section A carries 20 questions of 1 mark each, Section B carries 6 questions of 2 marks each, Section C carries 8 questions of 3 marks each and Section D carries 6 questions of 4 marks each.

Section A

(20X1=20)

Multiple Choice Questions:-

1. The Coefficient of x^2 in polynomial f(x)= $5x^3-3x^2+4x-2$ is
   (a) 5 (b) -3 (c) 4 (d) 3
2. If triangle PQR is right angled at Q, then
   (a) PR=PQ (b) PR <PQ (c) PR<QR (d) PR>PQ
3. x=5, y=2 is a solution of the linear equation .
   (a) x+2y =7 (b) 5x+2y=7 (c) x+y=7 (d) 5x+y=7
4. If the edge of the cube is 11 cm, then the volume of the cube is
   (a) 1121 cm^3 (b) 1221 cm^3 (c) 1321 cm^3 (d) 1331cm^3
5. The probability of even numbers between 10 to 20 is
   (a) $\frac{4}{9}$ (b) $\frac{5}{9}$ (c) $\frac{3}{9}$ (d) $\frac{4}{10}$
6. A right circular cylinder has
   (a) Only one face (b) two faces (c) 3 faces (d) 6 faces
7. Equal chords of a circle subtend _____ angles at the centre.
   (a) different (b) equal (c) a and b both (d) None of these
8. Degree of the polynomial $4x^4$ +5x+7 is
   (a) 2 (b) 3 (c) 4 (d) 1
9. The value of 249^2-248^2 is
   (a) 1 (b) 477 (c) 487 (d) 497
10. A circle has _____ centre points.
    (a) 1 (b) 2 (c) 0 (d) 3
11. Which of the following points lies on the y-axis ?
(a) (0,7) (b) (-7,0) (c) (4,5) (d) (-5, 0)
12. Mode of data : 15,14, 19,20,14, 15, 16, 14,15 ,18, 14, 19,15 is
    (a) 14 (b) 15 (c) 16 (d) 17
13. Which of the following points lies in the IV quadrant ?
    (a) (-2,0) (b) (-3,2) (c) (4, -7) (d) (-3,-5)

    OR

    The point (3,-2) lies in the _____ quadrant

    (a) I (b) II (c) III (d) IV
14. In ABC and PQR , AB=AC , C= P, B = Q . The two triangles are
    (a) Isosceles but not congruent (b) isosceles and congruent (c) congruent but not isosceles (d) neither congruent nor isosceles.

15. The area of triangle is _____ area of a parallelogram on the same base and between the same parallels.
    (a) Equal (b) Half (c) Twice (d) Thrice
16. Choose the irrational number.
    (a) $\sqrt{28}$ (b)$\sqrt{441}$ (c) $\sqrt{9}$ (d) $\sqrt{216}$
17. The value of $(32)^{\frac{-1}{5}}$
    (a) 3 (b) 2 (c) $\frac{1}{2}$ (d) $\frac{1}{3}$
18. The value of k , if x=3, y=-2 isa solution of the equation 2x+5y=2k is
    (a) 2 (b) -2 (c) 3 (d) -3
19. The zeroes of the polynomial 5x (x+ 2) is
    (a) -2 (b) 2 (c) 1 (d) -1
20. Abscissa of the point (-7,3) is
    (a) 3 (b) -7 (c) 4 (d) -4

Section-B

(6X2=12)

21. Factorise : x^2-3x-54
22. Check which of the numbers -1,2 and -3 are zeroes of the polynomial $2x^4+9x^3+11x^2+4x-6$
23. Write two solutions for each of the following equation 2x +y=1
24. Fill in the blanks .
    (a) An arc is a ____ when it's ends are the ends of a diameter.
    (b) _____ is the region between the chord and it's corresponding arc .
25. The height of students of a class are as- 155, 160,145, 149, 150, 147, 152, 144,148.find the median of this data.

    OR

    The following observations have been arranged in ascending order. If median of data is 63. Find the value of x.
    29. 32, 48, 50, x, x+2, 72 , 78, 84, 95

26. Three coins were tossed 20 times . Each time the number of heads occurring was given below.

    2, 1,0,3, 2,2,3,1,0,0,3,2,2,2, 3,1,1,0,2,3

    Prepare a frequency distribution table for the data .

Section-C

(8X3=24)

27.Find the area of quadrilateral ABCD in which AB=4cm , BC=3cm, CD=4cm, DA=4cm, AC=4cm.

28. E and F are the mid points of equal sides AB and AC of ABC, Show that BF=CE

OR

ABC is a right angled triangle , in which A=90^0, AB=AC,Find B and C.

29. Find six rational numbers between $\frac{3}{4}$ and $\frac{5}{6}$

30. Rationalise the denominator : $\frac{4\sqrt{3}+5}{4\sqrt{3}-2}$

31. Factorise : - $x^3 + x^2 - 4x - 4$

OR

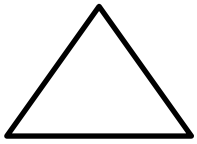
$8a^3 + b^3 + 12\,a^2 b + 6a\,b^2$

32. Solve the equation : 2x+1=x-3, and Represent on (i) number line (ii) Cartesian plane.

33. In fig, lines PQ and RS intersect each other at point o, if POR: ROQ=5:7. Find all the angles .

OR

In fig, X=70^0, XYZ=84^0, If YO and ZO are the bisector of XYZ and XZY of a XYZ, Find OZY and YOZ.



34. Prove that equal chords of congruent circles subtend equal angles at their centres.

OR

If a line intersect two concentric circles with centres o at A, B, C and D. Prove that AB=CD

Section-D

(6X4=24)

35. The sides of a triangular plot are in the ratio of 3:5: 7 and it's perimeter is 300 m. Find it's area.

OR

A field is in the shape of a trapezium whose parallel sides are 25m and 10 m. The non –parallel sides are 14 m and 13m. Find the area of the field.

36. Construct a triangle ABC in which BC= 7cm, B= 75^0 and AB+AC=13 cm.

37. A die is thrown 1000 times , the frequencies for the outcomes 1,2,3,4,5 and 6.

Outcome	1	2	3	4	5	6
frequency	179	150	157	149	175	190

Find the probability of getting each outcome.

38. Find the cost of digging a cuboidal pit 8m long , 6m broad and 3m deep at the rate of Rs. 30 per m^3

OR

If the height of a cone is 15 cm . If it's volume is 1570 cm^3 , find the radius of the base .

39. If E, F, G and H are mid points of the sides of a parallelogram ABCD .Show that

ar (EFGH) = $\frac{1}{2}$ar (ABCD)

40. Show that the diagonals of a square are equal and bisect each other at right angles.

OR

ABCD is a parallelogram and AP and CQ are perpendiculars from vertices A and C on diagonal BD. Show that : (a) APB = CQD (b) AP =CQ