LIONSSCHOOL, MIRZAPUR

HALF YEARLY EXAMINATION (2020-21)

CLASS-IX TIME – 3 HOUR

SUBJECT- MATHEMATICS MM-80

GENERAL INSTRUCTION:

(i) This question paper comprises four section-A,B,C and D. This question paper carries 40 question. all question are compulsory.
(ii) Section A: Q. No. 1 to 20 comprises of 20 questions of one mark each.
(iii) Section B: Q. No. 21 to 26 comprises of 6 questions of two marks each.
(iv) Section C: Q. No. 27 to 34 comprises of 8 question of three marks each.
(v) Section D:Q. No.35 to 40 comprises of 6 question of four marks each.
(vi) Use of calculator is not permitted.

SECTION -A (1 marks each)

Question number 1 to 10 are multiple choice question.

1. Which of the following is an irrational number?

(a) 3.14 (b) $3.1\overline{4}$ (c) $3.1\,\overline{4}$ (d) 3.141141114…

2. Degree of the zero polynomial is

(a) 1 (b) 0 (c) not defined (d) none of these

3. Every rational number is

(a) a natural number (b) a whole number (c) an integer (d) a real number

4. The complement of $72^0 40'$ is

(a)$107^0 20'$ (b) $27^0\ 20'$ (c)$17^0 20'$ (d) $12^0\ 40'$

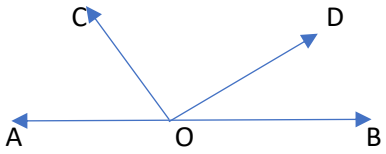
5.Which is not a criterion for congruency of triangles ?

(a) SSA (b) SAS (c) ASA (d) SSS

6. The point P (-5, 3) lies in

(a) Quadrant I (b) Quadrant II (c) Quadrant III (d) Quadrant IV

7. In the given figure , AOB is a straight line . I f the $\angle AOC+\angle BOD=95^0$ then $\angle COD$ =?



(a) 95^0 (b) 85^0 (c) 90^0 (d) 55^0

8. Which is a binomial?

(a) x^2+x+3 (b) x^2+4 (c) $2x^2$ (d) $x+3+\frac{1}{x}$

9. A point has

(a) a dimension (b) 1 dimension (c) 2 dimension (d) 3 dimension

10.An angle which measure more than 180^0 but less than 360^0 is called

(a) acute angle (b) obtuse angle (c) straight angle (d) reflex angle

Fill in the blanks in question number 11 to 15-

11 (-6,5) lies in _____ quadrant.

12.Area of equilateral triangle having each side 6cm is _____ .

13.The product of two irrational numbers is_____ .

14. Coefficient of x^2 in 3x-5 is _____ .

15.The angles of triangle are in the ratio 3:2:7 . The measure of each of its angles are _____ .

Answer the following question numbers 16 to 20-

16.An angle is one – fifth of its supplement . find measure of the angle.

17. In ΔABC , $if\ AB$=AC and $\angle A=70^0$, find $\angle B\ and\ \angle C$.

18.On which axis do (7,0) point lie ?

19. Each side of an equilateral triangle is 8cm . find its altitude.

20. Find a rational number lying between $\frac{1}{4}$ and $\frac{1}{3}$.

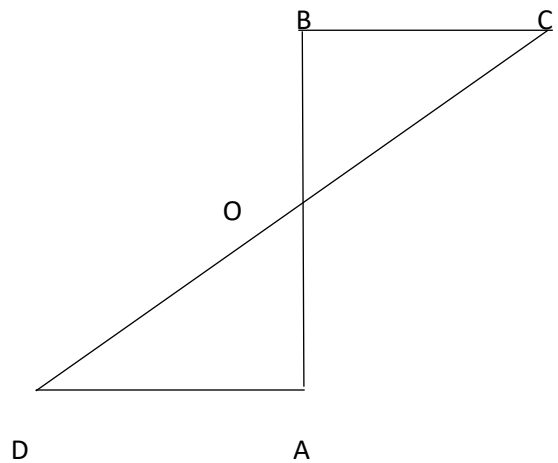
SECTION – B (2 marks each)

21 If $P(y) = 4+3y-y^2+5y^3$, find (i) P(2) (ii) P(-1) .

22.Expand $(3x+2)^3$.

23.In ΔABC , $\angle A + \angle B = 65^0$ and $\angle B + \angle C = 140^0$. Find the measure of each angle of a triangle.

24. AD and B C are equal perpendiculars to a line segment AB. Then to show that CD bisects AB.



25. Factorize : x^4-625

26. Locate $\sqrt{2}$ on the number line .

SECTION – C (3marks each)

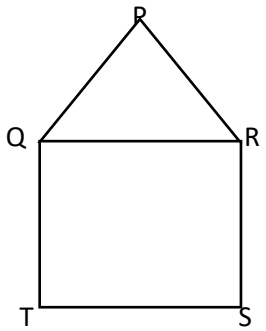
27.Find the remainder obtained on dividing P(x) =x^3+1 by x+1 .

28.In which quadrant do the points lie –

(i) (-2,4) (ii) (3,-1) (iii) (-1,0)

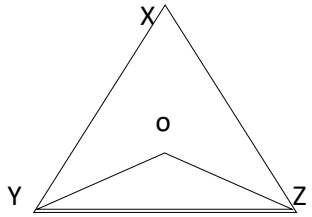
Verify your answer by locating them on graph.

29. In the given figure ,



PQR is an equilateral triangle and QRST is a square . Prove that (i)PT=PS (ii) ∠PSR=15^0.

30. In the given figure , $\angle X = 62\ ^0$, $\angle XYZ = 54\ ^0$ If YO and ZO are the bisectors of $\angle XYZ$



And $\angle XZY\ respectively\ of$ ΔXYZ, Find $\angle OZY\ and\ \angle YOZ$.

31.If $\frac{\sqrt{3}-1}{\sqrt{3}+1}$ =(a-b$\sqrt{3}$) find the values of and b.

32.Find the five rational number between $\frac{3}{5}$ and $\frac{4}{5}$.

33.Prove that the perimeter of a triangle is greater than the sum of its three medians.

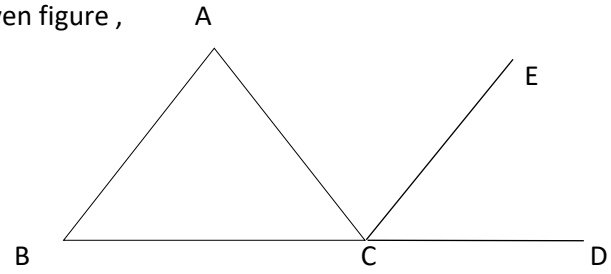
34.Factorise $3a^7b-81a^4b^4$.

SECTION-D(4 marks each)

35. The three vertices of ΔABC are A(1,4) , B(-2,2) and B(3,2) . Plot these points on graph paper and calculate the area of ΔABC.

36. Prove that the angle bisector between the internal bisector of one base angle and the external bisector of the other is equal to one half of the vertical angle .

37. In the given figure ,



Side BC of ΔABC is produced to form ray BD and CE ‖ BA . Show that

$\angle ACD = \angle A + \angle B. Deduce\ that\ \angle A + \angle B + \angle C$ = 180^0 .

38. Find a and b

$\frac{5+2\sqrt{3}}{7+4\sqrt{3}}$ = a-b$\sqrt{3}$.

39. Prove that the sum of all angles of around a point is 360^0 .

40. In a $\Delta ABC,\ \angle B > \angle C. If\ AM\ is\ the\ bisector\ of\ \angle BAC\ and\ AN\ \perp BC$ then to prove that

$\angle MAN = \frac{1}{2}(\angle B - \angle C)$