DELHI PUBLIC SCHOOL, JAMMU

ASSIGNMENT

ANNUAL EXAMINATION (2019-20)

Class: IX Sub: Maths

TOPICS:- Chapter 1- Number System.

Chapter 2- Polynomials.

Chapter 3- Coordinate Geometry.

Chapter 4- Lines and Angles.

Chapter 5- Triangles.

Chapter 6- Heron's Formula

Chapter 7.Linear Equation

Chapter 8. Quadrilateral.

Chapter 9. Area of parallelogram and triangle

Chapter 10. Construction.

Chapter 11. Surface area and volume.

Chapter 12. Statistics.

Chapter 13. Probability

Chapter 14. Circles.

Section 1 (MCQ type)

Q1. Which of following numbers can be represented as non-terminating, repeating decimals?

(a) $\frac{39}{24}$ (b) $\frac{3}{16}$ (c) $\frac{3}{11}$ (d) $\frac{137}{25}$

Q2. The number $0.\overline{3}$ in the form $\frac{p}{q}$, where p and q are integers and q$\neq$ 0, is

(a) $\frac{33}{100}$ (b) $\frac{3}{10}$ (c) $\frac{1}{3}$ (d) $\frac{3}{100}$

Q3. Which of the following is irrational?

(a) 0.15 (b) 0.01516 (c) $0.\overline{1516}$ (d) 0.501500150005..

Q4. An irrational number between 2 and 2.5 is

(a)$\sqrt{11}$ (b) $\sqrt{5}$ (c)$\sqrt{22.5}$ (d)$\sqrt{12.5}$

Q5. If Δ ABC ≅ Δ PQR and Δ ABC is not congruent to Δ RPQ then which of following is not true

(a) BC=PQ (b)AC=PR (c)AB=PQ (d)QR=BC

Q6. If 8^{x+1} =64, what is the value of 3^{2x+1} ?

(a) 1 (b)3 (c)9 (d)27

Q7. If $(2^{3})^{2}$ = 4^{x} ,then 3^{x} =

(a) 3 (b) 6 (c)9 (d) 27

Q8. If x +$\frac{1}{x}$ =5, then x^{2} + $\frac{1}{x^{2}}$ =

(a) 25 (b) 10 (c)23 (d) 27

Q9. If a+b+c =9 and ab+bc+ca = 23, then a^{2}+b^{2}+c^{2} =

(a) 35 (b) 58 (c) 127 (d) none of these

Q10. $(x+y)^{3}$ - $(x-y)^{3}$ can be factorized as

(a)2y($3x^{2}$ + y^{2}) (b)2x($3x^{2}$ + y^{2}) (c)2y($3y^{2}$ +x^{2}) (d)2x(x^{2} + $3y^{2}$)

Q11. If x+2 is a factor of x^{2} + mx + 14,then m =

(a) 7 (b) 2 (c) 9 (d) 14

Q12. If x+1 is a factor of the polynomial $2x^{2}$+kx, then k =

(a) -2 (b) -3 (c) 4 (d) 2

Q13. The ordinate of any point on x-axis is

(a) 0 (b) 1 (c) -1 (d) any number

Q14.The perpendicular distance of the point P (4,3) from y-axis is

(a) 4 (b) 3 (c) 5 (d) none of these

Q15.Side BC of a triangle ABC h has been produced to a point D such that ∠ACD = 120^{0}

If $\angle B$=$\frac{1}{2}\angle A$, then $\angle A$=

(a) 80^{0} (b) 75° (c) 60° (d) 90°

Q16. An exterior angle of a triangle is 108° and its interior opposite angles are in ratio 4:5. The Angles of the triangles are

(a) 48°, 60° ,72° (b) 50° ,60° ,70° (c) 52° ,56°, 72° (d)42°, 60°, 76°

Q17. In a Δ ABC, If AB=AC and BC produced to D such that ∠ACD = 100^{0} then ∠A =

(a) 20° (b) 40° (c) 60° (d) 80°

Q18. The sides of triangles are 7cm, 9cm, 14cm. Its area is

(a) $12\sqrt{5}$ cm^2 (b) $12\sqrt{3}$ cm^2 (c) $24\sqrt{5}$ cm^2 (d) 63 cm^2

Q19. The sides of triangles are 50cm, 78cm, 112cm. Its smallest altitude is

(a) 20 cm (b) 30 cm (c) 40 cm (d) 50 cm

Q 20. If every side of a triangle is doubled, then increase in area of triangle, is

(a) $100\sqrt{5}$ % (b) 200 % (c) 300 % (d) 400 %

Q 21. Diagonals of rhombus are……

Q22. Perpendicular bisector of chord always passes through ……..of circle

Q23. Volume of cube of side 'a' is …….

Q24. Mode of 5,6,7,6,3,2,0,7,6,5 is. …….

Q25. Probability of atleast 2 head in tossing of two coins is……..

Q26. Calculate mean of natural numbers from 1 to 10.

Q27. Probability of even prime number in tossing of one die is?

Q28. Ratio of surface area to the volume of a sphere is?

Q29. Find Median of 1st ten even numbers.

Q30. Find relation between slant height and radius of cone .

Section B (Very Short Type)

Q31. Prove that sum of angles of triangle is 180^0

Q32. . Prove that when two lines intersect then vertically opposite angles are equal

or

.Prove that equal chords of circle are equidistant from centre of circle.

Q33. Prove that in a triangle angle opposite to equal sides are equal.

Q34. AD is an altitude of Isosceles triangle ABC in which AB=AC. Show that AD bisects BC

And AD bisects ∠ A.

Q35. Find area of triangle two sides of which are 18cm and 10cm and perimeter 42cm.

Q36. The sides of triangle are in ratio 13:14:15 and its perimeter is 84cm. Find area of Triangle.

Q 37. Two supplementary angles are in ratio 2 : 7, find angles

Q 38. Angles of quad in ratio 2:3:4:5 find them.

Q 39. Radius and height of cone are 3cm and 4cm respectively. Find surface area.

Q40. Give examples of primary data and secondary data.

Section C (Short Type)

Q41. If of $x^2 + \frac{1}{x^2} = 79$. Find the value

(i) $x^3 + \frac{1}{x^3}$ ii) $x^3 - \frac{1}{x^3}$

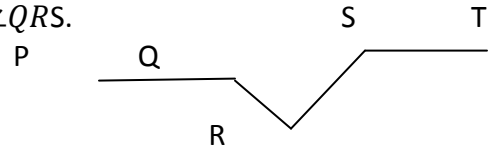
Or

If ab + bc + ca = 0, find the value of $\frac{1}{a^2-bc} + \frac{1}{b^2-ca} + \frac{1}{c^2-ab}$

Q42. If a + b = 10 & a b = 16, find $a^2 - a\,b + b^2$ and $a^2 + a\,b + b^2$.

Q43. Plot A(0,2), B(-2.5,0) and C(3.5,0) in graph and find area of triangle ABC.

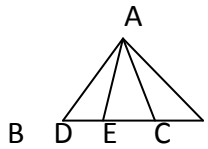
Q44. PQ|| ST, $\angle PQR = 110^0$ and $\angle RST = 130^0$, find $\angle QR$S.



Q45. . $\angle X = 62^0$ and $\angle XYZ = 54^0$. IF YO and ZO are the bisectors of $\angle XYZ$ and $\angle XZY$ respectively of triangle XYZ, Find $\angle OZY$ and $\angle YOZ$.

Q46. Prove that in triangle ABC, AB+BC > AC.

Q47. . In isosceles triangle ABC with AB=AC. D and E are points on BC such that BE=CD. Prove that AD= AE.



Q48. A field is in shape of a trapezium whose parallel sides are 25m and 10m. The Non parallel sides are 14m and 13m. find area of field. (

Or

The perimeter of Rhombus is 20 cm. One of its diagonal is 8 cm. Find area of Rhombus And length of the other diagonal.

Q49. Two coins are tossed 500 times and the following data obtained.

Number of heads	2	1	0
Number of times	105	275	120

Find probability of getting

(i) 2 heads (ii) 1 head (iii) no head.

Or

From a well shuffled deck of playing cards black king and red ace are removed. Find probability of (i) A king (ii) A black card (iii) A queen (iv) An ace of spade (v) A face card.

Q 50. Show that the line segment joining the mid-points of opposite side of quadrilateral bisect each other.

Or

If non parallel sides of trapezium are equal, then prove that it is cyclic. .

Q51. Construct angles of 75° ,135° , 15° and 105°

Q52. Diameter of a roller is 84cm and its height is 120cm. It takes 500 complete revolutions to move once over to level a playground, Find the area of playground in m^2.

Q53. .Diameter of moon is approximately one-fourth of the diameter of earth. Find ratio of their surface areas. Also find ratio of their volumes.

Or

The radius of a spherical balloon increases from 7cm to 14 cm as air is being pumped into it. Find the ratio of the surface areas of the balloon in the two cases. .

Q54. Prove th. at a median of a triangle divides it into two triangles of equal area.

Or

Prove that parallelogram on same base and between same parallel are equal in area.

Section D (Long Type)

Q55. Represent $\sqrt{6.5}$ or $\sqrt{9.3}$ on number line and give justification.

Q56. Expand (i) $(x^2 + y^2 - z^2)^2$ - $(x^2 - y^2 + z^2)^2$ ii) $\left(\frac{x}{y} + \frac{y}{z} + \frac{z}{x}\right)^2$

Q57. Side QR of Δ PQR is produced to S. If bisector of $\angle PQR$ and $\angle PRS$ meet at T, then prove that $\angle QTR = \frac{1}{2}\angle QPR$.

Q58. Two sides AB and AC of Δ ABC are produced to P and Q respectively. The Bisectors of∠ PBC and ∠QCB intersect at O, prove that ∠BOC =90^0 - $\frac{1}{2}\angle A$

Or

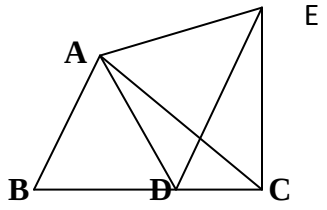
In a Δ ABC, bisectors of ∠ ABC and ∠ ACB intersect at O, prove that ∠BOC =90^0 + $\frac{1}{2}\angle A$

Q59. Prove that two triangles are congruent if two angles and included side of

One triangle are equal to two angles and included side of other triangle.

Q60. In given figure AC=AE, AB=AD

∠BAD = ∠EAC , show that BC=DE



Q61. Given below are the seats won by different political parties in a poll.

Draw bar graph.

Political party	A	B	C	D	E	F
Seats won	75	55	37	29	10	35

Q62 For given data construct frequency polygon.

Number of letters	1-5	6-10	11-15	16-20	21-25
Number of surnames	6	30	40	16	4

Q63. Show that diagonals of square are equal and bisect each other at right angles

Q64.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.

Q65.Construct a triangle PQR in which PR-PQ= 2cm, QR =6cm and ∠Q = 60˚.

Or

Construct a Δ PQR, such that QR = 8cm, ∠Q = 30° and PQ – PR= 3.5cm

Q66.Twenty seven solid iron spheres, each of the radius r and surface area S are melted to form a sphere with surface area S'. Find the:

(I) Radius r' of the new spheres

(II) Ratio of S and S'

Q67.A dome of building is in the form of hemisphere. From inside it is whitewashed at the rate of Rs4 per square metre. If total cost of whitewashing is Rs 800. Find inner surface area and volume of air in dome.

Q68.For given data construct histogram.

Number of letters	1-4	4-6	6-8	8-12	12-20
Number of surnames	6	30	44	16	4

Q69. Show that the line segment joining the mid-points of sides rectangle forms a rhombus .

Q 70. Represent $\sqrt{5}\ or\ \sqrt{3}$ on number line and give justification