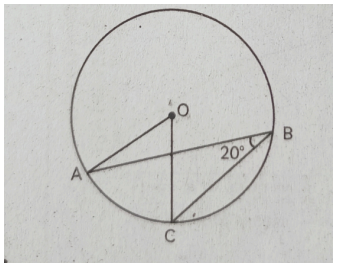
SAMPLE PAPER – 1
SUBJECT – MATHEMATICS
CLASS – 9TH

TIME – 3 HRS M.M - 80

General Instructions:
This Question Paper has 5 Sections A-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 subparts of the values of 1, 1 and 2 marks each respectively.

SECTION -A

1. Insert 4 rational numbers b/w 4/5 and 5/6.
2. Find the zero of the polynomial P(X) = 2x -8
3. What is the perpendicular distance of the point (3,4) from the Y - axis.
4. If the height of a cone is 24 centimeter and the diameter of the base is 14 centimeter, then find the slant height of the cone.
5. The cost of a pen is rupees 5 less than half the cost of a notebook. write the statement as a linear equation in two variables.
6. If two adjacent angles of a parallelogram are in the ratio 3:2 then find the measure of angles.
7. Find The volume of a hemisphere whose radius is 2r.



8. In the given figure if angle ABC is 20 degree then find angle AOC.
9. Check whether 0 and 2 are zeroes of the polynomial x^2 -2x.
10. Give an example of a monomial and a binomial having degrees of 100 and 35 respectively.
11. What is the class mark of the class interval 90-120?
12. If the perimeter of an equilateral triangle is 36cm. Then find its area.
13. A point has _____ dimension.

14. For two triangles, if two angles and the included side of one triangle are equal to two angles and the included side of another triangle. Then the congruency rule is:

a. SSS

b. ASA

c. SAS

d. None of the above

15. find the surface area of a sphere whose radius is 2r.

16. A diagonal of a rectangle is inclined to one side of the rectangle at 25º. Find The acute angle between the diagonals.

17. write a point which lies on the y-axis at a distance of 5 units in the negative direction of the y-axis.

18. Which of the following is an irrational number?

a. √16

b. √(12/3)

c. √12

d. √100

DIRECTIONS: In the question number 19 and 20, a statement of assertion A is followed by a statement of reason R. choose the correct option

I. Both assertion and reason are true and reason is the correct explanation of assertion a.
II. Both assertion A and reason are true and reason R is not the correct explanation of assertion a
III. Assertion A is true but reason R is false
IV. assertion A is false but reason R is true.

19. Assertion: √5 is an irrational number.

Reason: A number is called irrational, if it cannot be written in the form p/q, where p and q are integers and q≠0

20. Assertion: An equation of the form ax + by + c = 0, where a, b and c are real numbers, such that a and b are not both zero, is called a linear equation in two variables.

Reason: A linear equation in two variables has infinitely many solutions.

SECTION -B

21. Express $3.\overline{25}$ in the form p/q, where p and q are integers and q not equals to 0.

22. Find the remainder, when the polynomial

$2x^4+x^3+4x^2-3x-2$ is divided by x−3.

23. What are the four postulates of Euclid's Geometry?

24. A capsule of medicine is in the shape of a sphere of diameter 3.5 mm. How much medicine

(in mm3) is needed to fill this capsule?

25. Find the area of triangular park whose sides area of length 120m, 80m and 50m.

SE CTION – C

26. Represent √8.5 on a number line.

27. If the non-parallel sides of a trapezium are equal, prove that it is cyclic.

28.find 4 different solutions for 2x+y = 11.

29. Write the answer to each of the following questions:

(i) What is the name of the horizontal and the vertical lines drawn to determine the position of any point in the Cartesian plane?

(ii) What is the name of each part of the plane formed by these two lines?

(iii) Write the name of the point where these two lines intersect

30.

Draw a histogram for the following data distribution:

Class Intervals	50-60	60-70	70-80	80-90	90-100	100-110
Frequency	30	25	45	15	20	40

31. : ΔABC is an isosceles triangle in which AB = AC. Side BA is produced to D such that AD = AB. Show that ∠BCD is a right angle.

SECTION -D

32. ABCD is a quadrilateral in which P, Q, R, S are the midpoints of the sides AB, BC, CD and DA respectively. AC is the diagonal. Prove that: (a) PQRS is a parallelogram (b) PQ = SR (c) SR || AC and SR = ½ AC.

33. AB is a line segment and P is its mid-point. D and E are points on the same side of AB such that ∠BAD = ∠ABE and ∠EPA = ∠DPB. Show that

(i) ΔDAP ≅ ΔEBP

(ii) AD = BE

34. The sides of a triangle are in the ratio of 12: 17: 25 and its perimeter is 540cm. Find its area.

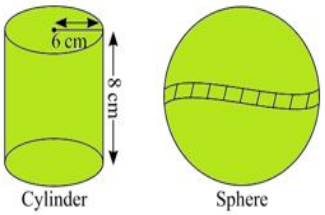
35. In a batch of 400 students, the height of students is given in the following table. Represent it through a frequency polygon.

Height (in cm)	Number of Students(Frequency)
140 – 150	74
150 – 160	163
160 – 170	135
170 – 180	28
Total	400

SECTION -E

36. Mr. Kumar, a Mathematics teacher brings some green coloured clay in the classroom to teach the topic 'mensuration'. First, he forms a cylinder of radius 6 cm and height 8 cm with the clay. Then, he moulds that cylinder into a sphere similarly, he moulds the sphere in other different shapes. Answer the following questions:

(i) Which of the following is not a 3D shape?



(a) cone (b) cuboid (c) rectangle (d) sphere

(ii) What is the volume of cylindrical shape?

(a) 268π cm^3 (b) 288π cm^3 (c) 36π cm^2 (d) 48π cm^3

(iii) What is the formula of volume of sphere?

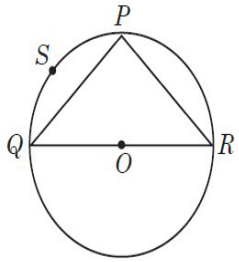
(a) $2323\ \pi r^3$ (b) πr^3 (c) $1313\ \pi r^3$ (d) $4343\ \pi r^3$

(iv) When clay changes into on shape to other which of the following remains same.

(a) Volume (b) Area (c) CSA (c) Radius

37. Ankit visited in a mall with his father. He sees that three shops are situated at P, Q, R as shown in the figure from where they have to purchase things according to their need. Distance between shop P and Q is 8 m, that of between shop Q and R is 10 m and between shop P and R

is 6 m.



(i) Find the radius of the circle.
(a) 5 m
(b) 7 m
(c) 14 m
(d) 8 m
ii) Measure of ∠QPR is
(a) 60°
(b) 90°
(c) 120°
(d) 180°
iii) Area of ΔPQR is
(a) 18 m2
(b) 20 m2
(c) 22 m2
(d) 24 m2

(Iv) In figure, PSQP is known as
(a) Major segment
(b) Minor segment
(c) Major sector
(d) Minor sector

38. Deepak bought 3 notebooks and 2 pens for Rs. 80. His friend Ram said that the price of each notebook could be Rs. 25. Then three notebooks would cost Rs.75, the two pens would cost Rs.5 and each pen could be for Rs. 2.50. Another friend Ajay felt that Rs. 2.50 for one pen was too little. It should be at least Rs. 16. Then the price of each notebook would also be Rs.16

Lohith also bought the same types of notebooks and pens as Aditya. He paid 110 for 4 notebooks and 3 pens. Later, Deepak guess the cost of one pen is Rs. 10 and Lohith guess the cost of one notebook is Rs. 30.

(i) Form the pair of linear equations in two variables from this situation by taking cost of one notebook as Rs. x and cost of one pen as Rs. y.
(a) 3x + 2y = 80 and 4x + 3y = 110
(b) 2x + 3y = 80 and 3x + 4y = 110
(c) x + y = 80 and x + y = 110
(d) 3x + 2y = 110 and 4x + 3y = 80

(ii) Which is the solution satisfying both the equations formed in (i)?

(a) x = 10, y = 20 (b) x = 20, y = 10
(c) x = 15, y = 15 (d) none of these
(iii) Find the cost of one pen?
(a) Rs. 20 (b) Rs. 10 (c) Rs. 5 (d) Rs. 15
(iv) Find the total cost if they will purchase the same type of 15 notebooks and 12 pens.
(a) Rs. 400 (b) Rs. 350 (c) Rs. 450 (d) Rs. 420
