Mathematics Standard

Class 10th **Marks 80**

General Instructions:

i. This question paper comprises four sections—A,B,C&D. This question paper carries 40 questions. All questions are compulsory.
ii. Section—A – Q No.1 to 20 comprises 20 questions of one marks each
iii. Section—B – Q 21—26 comprises of 6 questions of two marks each
iv. Section—C – Q 27 to 34 comprises of 8 questions of three marks each
v. Section—D – Q 35 to 40 comprises of 6 questions of four marks each.
There is no overall choice in the question paper. However an integral choice has been provided in 2 questions of one mark, 2 questions of two marks, 3 questions of three marks and 3 questions of four marks. You have to attempt only one of the choice in such questions.

Section-A

Question number 1 to 10 are MCQs of 1 marks each. Select the correct option:

Q1. The HCF of 2 and 11 is

a) 2 b) 11 c) 22 d) 1

Q2. A polynomial of degree '2' is called

a) Quadratic poly b) Zero Poly C) Quartic Poly D) None of these

Q3. A Quadratic Equation $aX^2 + bX + C=0$, $a \neq 0$ has two equal roots if:

a) D>0 b) D=0 C) D<0 d) N.O.T

Q4. The Common difference of the AP 6,9,12,15 ----is:

a) 6 b) -3 c) 9 d) 3

Q5. The distances of the point A(x,y) from the Origin O (0,0) is

a) $\sqrt{x^2 + y^2}$ b) $\sqrt{x^2 - y^2}$ c) X^2 d) Y^2

Q6. A line which touches a circle at one point is called

a) Secant b) Chord c) tangent d) N.O.T

Q7. Area of circle is given by:

a) $\bar{\wedge}r^3$ b) $2\bar{\wedge}r$ c) $\bar{\wedge}r^2$ d) N.O.T

Q8. Which of the following cannot be the probability of an event:

a) 2/3 b) -1.5 c) 15% d) 0.7

Q9. The value of Sin 18°/Cos 72° is:

a) -1 b) 0 c) 1 d) √3

Q10. The mean of the grouped data can be found by direct method as:

a) $\sum \frac{fi}{fixi}$ b) $\sum \frac{xi}{fixi}$ c) $\sum \frac{fi}{xi}$ d) $\sum \frac{fixi}{fi}$

In Q.Nos 11 to 15, fill in the blanks. Each question is of 1 marks each.

Q11. LCM (a,b) x HCF (a,b) =_____ (axb/a+b).

Q12. x=1, y=2 is the solution of the pair of linear equation

x+2y=3 and x+y=3 _____ (Yes/No)

Q13. $Qn = Q + (n + 1)d$ *is the general term of an AP*_____ (True/False)

OR

Sum of first 'φ' term of an A.P is given by

$S\varphi = \varphi/2\ (2a+(\varphi - 1)d)$_____ (True/False)

Q14. SinΘ = CosΘ for all values of Θ_____ (True/False)

Q15. All_____ triangles are similar (Isosceles/Equilateral).

Q16. to Q20 are short answer type questions of 1 marks each.

Q16. Define Collinear Points

OR

Write a formula for finding the area of a ΔABC with Coordinates of the Vertices as $A(x_1,y_1)$, $B(x_2, y_2)$, $C(x_3,y_3)$.

Q17. Write One application of Trigonometry

Q18. State Pythagoras theorem?

Q19. If P(E) = 0.5, find P(notE)?

Q20. Given r=1 unit, find the vol. of Sphere?

Section-B

QNos 21 to 26 Carry 2 marks each

Q21. 2 Cubes each of volume $64cm^3$ are joined end to end. Find the surface area of the resulting Cuboid.

Q22. Given that HCF(306,657)=9, find LCM(306,657).

Q23. Check for Consistency

5x-4y=8=0

10x-8y+16=0

Q24. Find the values of $\frac{2tan45°}{1+tan^2 45°}$?

OR

Evaluate

Sin25° Cos65° + Cos25° Sin65°

Q25. One A die is thrown Once. Find the probability of getting 'an odd number'

Q26. The marks obtained by 30 students of class X of a certain school in a mathematics proper consisting of 100 marks are presented in table below. Find the mean of the marks obtained by the students

Marks Obtained (Xi)	10	20	36	40	50	56	60	70	72	80	88	92	95
No. of Students (fi)	1	1	3	4	3	2	4	4	1	1	2	3	1

Section-C

Q27. To 34 carry 3 marks each:

Q27. Find the zero's of the quadratic polynomial, and verify the relationship between the zero's and the coefficients $4S^2 - 4S+1$

OR

Divide x^3-3x^2+5x-3 by x^2-2 and find the quotient and the remainder.

Q28. Solve the pair of linear equation by substitution method.

x+y=14, x-y=4

Q29. Find the value of K,so that the quadratic equation have two equal roots $2x^2+Kx+3=0$

Q30. Which term of an AP: 3,8,13,18_____ is 78?

OR

Find the sum of the first 15 multiplies of 8

Q31 Evaluate $\frac{\text{Sin}^2 63°+\text{Sin}^2\ 27°}{\text{Cos}^2 17°+\text{Cos}^2 73°}$?

Q32. Prove that the tangents drawn at the ends of a diameter of a circle are parallel

OR

Prove that the ||gm circumscribing a circle is a rhombus.

Q33. Find the area of a sector of a circle with radius 6cm if angle of the sector is 60°.

Q34. A drinking glass is in the shape of a frustum of a core of height 14cm. the diameter of its two circular ends are 4cm and 2cm. find the capacity of the glass.

Section-D

QNo. 35 to 40 carry 4 marks each

Q35. Find the roots of the quadratic equation $4x^2+4\sqrt{3x+3}$ by the method of completing the square.

OR

Find two numbers whose sum is 27 and product is 182.

Q36. The angle of elevation of the top of a tower from a point on the ground which is 30m away from the foot of tower is 30°. Find the height of the tower.

Q37. Find the points on the x-axis which is equidistant from (2,-5) and (-2,9)

OR

Find the ratio in which the line segment joining the points (-3,10) and (6,-8) is divided by (-1,6)

Q38. The ratio of the area of two similar Δs is equal to the square of the ratio of their corresponding sides.

OR

ABC is an issosless Δ right angled at C. prove that $AB^2=2AC^2$.

Q39. Construct a triangle with sides 5cm, 6cm, & 7cm and then another triangle whose sides are 7/5 of the corresponding sides of the first Δ.

Q40. The distribution below gives the weight of 3 students of a class. Find the median weight of the students.

Weight (in kg)	40-45	45-50	50-55	55-60	60-65	65-70	70-75
No. of Students	2	3	8	6	6	3	2

* The paper has been prepared as per the CBSE pattern after a minor change in marks distribution of different Topics of Mathematics.
* The question paper has been prepared from the Text book of Mathematics provided by BOSE Sgr,
* The question paper comprises 40 questions of 80 marks (summative assessment)
* Internal assessment of 20 marks:
  Like (i) Pen paper test (ii) Project work, like measurement of school campus, perimeter of boundary etc. (iii) Attendance and participation.

Signature of Committee:

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Marks distribution

1.	Real No's	4 marks	1+1+2
2.	Polynomials	4 marks	1+3
3.	Linear Eq.in two variables	6 marks	1+2+3
4.	Quaratic Equation	8 marks	1+3+4
5.	Arthmetic progression	5 marks	1+1+3
6.	Trigonometry	7 marks	1+1+2+3
7.	Application to Trigonometry	5 marks	1+4
8.	Co-ordinate Geometry	6 marks	1+1+4
9.	Triangles	6 marks	1+1+4
10.	Circles	5 marks	1+1+3
11.	Construction	4 marks	4
12.	Area related to Os	4 marks	1+3
13.	Surface Area & Volumes	6 marks	1+2+3
14.	Probability	4 marks	1+1+2
15.	Statistics	6 marks	2+4
		80 Marks	