STATE LEVEL EXAM (2024 – 2025)

MATHS MARATHON Competition For Excellence	CLASS **8**
Total Questions : 100 **Total Marks : 100**	**Time : 1 hour**

INSTRUCTIONS TO THE STUDENT'S

1. Please do not open this question paper unless you are instructed to do so.
2. Additional 5 minutes will be given to the candidates for filling up the student's details before the start of the competition.
3. The paper consists of 5 different chapters of the textbook.
4. All questions are compulsory and consist of equal marks.
5. Each question is carrying 1 mark, there is no negative marking.
6. There is only one correct answer, hence mark one answer only.
7. Darken the circle with dark pencil or blue/black ball pen only.
8. Return the answer sheet along with the question paper to the supervisor at the end of the exam.
9. Extra Blank pages can be used for rough calculations

Name - _____

SCHOOL - _____

ROLL NO - _____ CLASS - _____

SECTION 1 - DIVISION OF POLYNOMIALS

1. Simplify: $(12x^3y^2) \div (4x^2y)$
   A) $3x\ y$ B) $3x^2\ y$ C) $3x\ y^2$

2. Solve: $(18a^5b^3) \div (6a^2b^2)$
   A) $3a^2b$ B) $3a^3b$ C) $3a^3b^2$

3. Find the quotient: $(20x^7y^4z^3) \div (5x^3y^2z)$
   A) $4x^4y^2z^2$ B) $4x^4y^2z$ C) $4x^3y^2z^2$

4. Divide: $(42m^7n^5p^3) \div (6m^3n^2p)$
   A) $7m^4n^2p^2$ B) $7m^3n^2p$ C) $7m^4n^3p^2$

5. Simplify: $(16x^{10}y^8z^6) \div (4x^5y^4z^3)$
   A) $4x^5y^4z^3$ B) $4x^5y^2z^2$ C) $4x^5y^4z^2$

6. Solve: $(35p^6q^7r^8) \div (7p^2q^3r^4)$
   A) $5p^4q^3r^2$ B) $5p^2q^4r^4$ C) $5p^4q^4r^4$

7. Divide: $(8m^5n^3 + 12m^4n^2 - 16m^3n) \div 4m^3n$
   A) $2m^2n^2 + 3m + 4$ B) $2m^2n^2 + 3mn - 4$ C) $2m^2n^2 + 3m - 4n$

8. Find the quotient: $(35a^7b^6 - 14a^5b^4 + 21a^3b^2) \div 7a^3b^2$
   A) $5a^4b^4 - 2a^2b^2 + 3$ B) $5a^4b^4 - 2a^2b^2 + 3a$ C) $5a^4b^4 - 2a^2b^2 + 3b$

9. Solve: $(50m^8n^6 + 40m^6n^4 - 30m^4n^2) \div 10m^4n^2$
   A) $5m^4n^4 + 4m^2n^2 - 3m$ B) $5m^4n^4 + 4m^2n^2 - 3$ C) $5m^4n^4 + 4m^2n^2 - 3n$

10. Find the quotient: $(28p^9q^7r^5 - 14p^7q^5r^3 + 21p^5q^3r) \div 7p^5q^3r$
    A) $4p^4q^4r^4 - 2p^2q^2r^2 + 3$ B) $4p^4q^4r^4 - 2p^2q^2r^2 + 3p$ C) $4p^4q^4r^4 - 2p^2q^2r^2 + 3q$

11. Simplify $(48m^5n^3 + 32m^3n^2 - 16mn) \div 16mn$:
    A) $3m^4n^2 + 2m^2n - 1$ B) $3m^4n^2 + 2m^2n + 1$ C) $3m^4n^2 - 2m^3n - 1$

12. Simplify $(16m^5n^3 - 8m^4n^2 + 4m^3n) \div 4m^3n$:
    A) $4m^2n^2 - 2mn + n$ B) $4m^2n^2 - 2mn + 1$ C) $4m^2n^3 - 2mn + 1$

13. Simplify $(24p^6q^4 - 12p^3q^2 + 6pq) \div 6pq$:
    A) $4p^5q^3 - 2p^3q + 1$ B) $4p^5q^3 - 2p^2q + 1$ C) $4p^5q^3 - 2p^2q + pq$

14. Simplify $(75m^6n^4 - 45m^5n^3 + 15m^4n^2) \div 15m^4n^2$:
    A) $5m^2n^2 - 3m + 2$ B) $5m^2n^2 - 3m^2 + 1$ C) $5m^2n^2 - 3mn + 1$

15. Solve: $(6x^2 + 11x + 3) \div (2x + 3)$

A) $3x + 1$ B) $2x + 1$ C) $3x + 2$

16. Solve: $(x^4 - 5x^2 + 4) \div (x^2 - 1)$

A) $x^2 - 3$ B) $x^2 - 5$ C) $x^2 - 4$

17. Simplify: $(x^3 + 2x^2 - 5x - 6) \div (x - 2)$

A) $x^2 + 4x + 3$ B) $x^2 + 2x - 3$ C) $x^2 + 3x + 2$

18. Divide $5x^4 + 6x^3 - 3x^2 + 2x - 1$ by $x - 1$ and find the quotient:

A) $5x^3 + x^2 - 2x + 1$ B) $5x^3 + 6x^2 - x + 1$ C) $5x^3 + 11x^2 + 8x + 10$

19. Divide $x^4 + 2x^3 - 3x^2 + 5x - 4$ by $x + 1$ and find the quotient:

A) $x^3 + x^2 - 4x + 9$ B) $x^3 + x^2 - 2x + 4$ C) $x^3 - 3x^2 + 5x - 4$

20. Divide $2x^3 - 4x^2 + 6x - 8$ by $x - 2$ and find the quotient:

A) $2x^2 + 2$ B) $2x^2 - 6$ C) $2x^2 + 6$

SECTION 2 - EQUATIONS IN ONE VARIABLE

21. Solve: $x / 5 - 2 = 4$

A) $x = 30$ B) $x = 35$ C) $x = 40$

22. Solve: $6x + 9 = 3x + 18$

A) $x = 2$ B) $x = 3$ C) $x = 4$

23. Solve: $(x+2) / 3 = (x-4) / 2$

A) $x = 16$ B) $x = 8$ C) $x = 10$

24. Solve: $(2x – 1) / 3 – (x + 2) / 2 = 1/6$

A) $x = 2$ B) $x = 3$ C) $x = 9$

25. The amount in Asha’s pocket is ₹250 more than three times the amount in Sneha’s pocket. If ₹300 is transferred from Asha to Sneha, Asha will have 2/1 of the amount Sneha has. Find the initial amount with Sneha.

A) ₹650 B) ₹200 C) ₹250

26. A train travels 60 km at a certain speed. If the speed is reduced by 10 km/h, it takes 1 hour more. Find the original speed.

A) 20 km/h B) 30 km/h C) 40 km/h

27. A train travels 120 km in 2 hours. If the speed of the train is increased by 10 km/h, it will cover the same distance in 1 hour less. Find the original speed of the train.

A) 50 km/h B) 60 km/h C) 70 km/h

28. The length of a rectangle is 3 meters more than twice its width. The perimeter of the rectangle is 24 meters. What is the length of the rectangle?

A) 7 meters B) 8 meters C) 9 meters

29. Ravi has ₹100 more than twice the amount Suman has. If ₹50 from Ravi's amount is given to Suman, Ravi's amount will be 3/2 times the amount with Suman. Find the initial amount with Suman.

A) ₹150 B) ₹100 C) ₹50

30. Rita has ₹300 more than three times the amount of money Samir has. If ₹150 from Rita's money is given to Samir, Rita will have 4/3 of the money Samir has. Find the initial amount with Samir.

A) ₹100 B) ₹30 C) ₹70

31. A cricketer scored 120 runs in the first match, 150 runs in the second match, and 200 runs in the third match. What is his average score?

A) 145.21 B) 160.23 C) 156.67

32. Shivani has ₹150 more than three times the amount Neetu has. If ₹202 from Shivani's amount is given to Neetu, Shivani will have 5/4 times the amount with Neetu. Find the initial amount with Neetu.

A) ₹100 B) ₹174 C) ₹200

33. A sum of money is divided among A, B, and C in such a way that A gets twice as much as B, and B gets three times as much as C. If the total amount is ₹660, how much does C get?

A) ₹66 B) ₹42 C) ₹84

34. A shopkeeper sells a pen for ₹50, which is ₹10 more than twice its cost price. What is the cost price of the pen?

A) ₹15 B) ₹20 C) ₹25

35. The sum of three consecutive even numbers is 90. What is the smallest number?

A) 28 B) 26 C) 30

36. A father is three times as old as his son. In 5 years, the sum of their ages will be 70. How old is the son now?

A) 10 years B) 15 years C) 20 years

37. A man is currently four times as old as his son. In 10 years, the man will be twice as old as his son. What is the present age of the son?

A) 10 years B) 8 years C) 5 years

38. A train travels 40 km more than twice the distance covered by a car. If the total distance travelled by both is 340 km, what is the distance covered by the car?

A) 80 km B) 100 km C) 120 km

39. A number is 5 more than twice another number. If their sum is 29, what is the smaller number?

A) 8 B) 10 C) 6

40. A shopkeeper sells an item at a 20% profit. If the cost price of the item is ₹x, the selling price becomes ₹540. What is the value of x?

A) ₹400 B) ₹420 C) ₹450

SECTION 3 - CONGRUENCE OF TRIANGLES / COMPOUND INTEREST

41. If two triangles have two corresponding angles equal, then they are:

A) Congruent B) Similar C) Neither

42. Diagonals of a rhombus bisect each other at 90°.Resulting triangles are congruent by:

A) ASA criterion B) SAS criterion C) RHS criterion

43. If two triangles have two angles and the side opposite one of them equal, then they are congruent by:

A) SSS criterion B) AAS criterion C) ASA criterion

44. If two triangles are congruent by SSS, then:

A) Their corresponding angles are equal B) Their areas are proportional

C) Their perimeters are unequal

45. $\triangle ABC$ & $\triangle PQR$ are congruent. If AC = 7 cm, AB = 6 cm, and $\angle B = 40°$, Find value of $\angle Q$?

A) 80° B) 60° C) 40°

46. If $\triangle ABC \cong \triangle PQR$ and AB = 5 cm, BC = 7 cm, AC = 8 cm, what is the length of QR?

A) 5 cm B) 7 cm C) 8 cm

47. The compound interest on ₹5,000 at 8% per annum for 2 years, compounded annually, is:

A) ₹832 B) ₹816 C) ₹850

48. If ₹10,000 is invested at 6% per annum compounded annually, find the compound interest for the fourth year alone:

A) ₹678.30 B) ₹707.46 C) ₹714.6

49. The population of a city is 50,000, and it increases at a rate of 4% per annum. What will be the population after 2 years?

A) 53,040 B) 52,000 C) 54,080

50. Sum of ₹40,000 is invested at 6% per annum compounded half-yearly. Find amount after 1 year?

A) ₹42,432 B) ₹42,436 C) ₹42,500

51. A sum of ₹1,00,000 is invested at 10% per annum compounded annually. How much interest is earned during the third year?

A) ₹10,000 B) ₹12,100 C) ₹12,200

52. A sum of ₹5,000 is invested at 8% per annum compound interest, compounded quarterly. Find the amount after 2 years.?

A) ₹6,214 B) ₹6,004 C) ₹6,864

53. If ₹6,400 amounts to ₹7,744 in 2 years at compound interest, what is the rate of interest per annum?

A) 10% B) 12% C) 15%

54. A sum of ₹2,000 is invested at 12% per annum compound interest, compounded half-yearly. Find the amount after 3 years.?

A) ₹2,467 B) ₹2,837 C) ₹3,047

55. The population of a city is 50,000, and it increases at a rate of 4% per annum. What will be the population after 2 years?

A) 53,040 B) 52,000 C) 54,080

56. If the compound interest on a certain sum for 2 years at 5% per annum is ₹205, find principal?

A) ₹2,000 B) ₹4,000 C) ₹2,100

57. Find the compound interest on ₹10,000 for 2 years at 5% per annum compounded annually.

A) ₹1,033 B) ₹1,035 C) ₹1,025

58. Find the compound interest on ₹20,000 for 3 years at 6% per annum compounded quarterly.

A) ₹2,912 B) ₹3,912 C) ₹1,412

59. Rohan invested ₹15,000 at 8% per annum compounded annually. What is the compound interest earned in 2 years?

A) ₹2,496 B) ₹2,460 C) ₹2,500

60. A sum of ₹8,000 is invested at 5% per annum, compounded annually. Find the compound interest after 3 years.

A) ₹1,321 B) ₹1,261 C) ₹1,121

SECTION 4 - AREA

61. If the base of a parallelogram is 10 cm and its height is 5 cm, what is its area?

A) 50 cm^2 B) 25 cm^2 C) 100 cm^2

62. A parallelogram has a base of 15 cm and an area of 60 sq.cm. What is its height?

A) 3 cm B) 5 cm C) 4 cm

63. A solar panel is mounted at an angle to the ground and forms a parallelogram. The base of the solar panel is 2.5 m, and its height is 1.2 m. What is the area of the solar panel?

A) 3.0 sq.m B) 3.2 sq.m C) 3.5 sq.m

64. A painting in the shape of a parallelogram has a base of 12 inches and a height of 8 inches. What is the total area of the painting?

A) 48 in^2 B) 96 in^2 C) 100 in^2

65. What is the formula for the area of a rhombus?

A) $(Diagonal_1 \times Diagonal_2) \div 2$ B) Side × Side C) Base × Height

66. Which of the following does NOT affect the area of a rhombus?

A) Length of a side B) Length of diagonals C) Height

67. A garden is in the shape of a rhombus with diagonals of 30 meters and 40 meters. How much land does it cover?

A) 400 m^2 B) 300 m^2 C) 600 m^2

68. If the area of a rhombus is 150 cm^2 and one diagonal is 15 cm, what is the length of the second diagonal?

A) 25 cm B) 10 cm C) 20 cm

69. If lengths of parallel sides of trapezium are 8 cm & 12 cm, the height is 5 cm, Find area?

A) 50 cm^2 B) 40 cm^2 C) 60 cm^2

70. The area of a trapezium is 84 m^2. If its bases are 12 m and 16 m, what is its height?

A) 7 m B) 6 m C) 8 m

71. A trapezium has an area of 90 cm^2, and its height is 10 cm. If one base is 7 cm, what is the length of the other base?

A) 9 cm B) 10 cm C) 11 cm

72. The bases of a trapezium are 18 cm and 12 cm, and its height is 10 cm. What is its area?

A) 100 cm^2 B) 150 cm^2 C) 200 cm^2

73. The semi-perimeter (s) of a triangle is calculated using which formula?

A) (a + b + C) ÷ 2 B) (a × b × C) ÷ 2 C) (a + b + C) ÷ 3

74. If a triangle has sides of 7 cm, 24 cm, and 25 cm, what is its semi-perimeter (s)?

A) 32 cm B) 30 cm C) 28 cm

75. The sides of a triangular plot are 9 m, 12 m, and 15 m. What is the area of the plot?

A) 45 m^2 B) 54 m^2 C) 60 m^2

76. A right-angled triangle has two perpendicular sides of 6 cm and 8 cm. What is its area?

A) 24 cm^2 B) 30 cm^2 C) 36 cm^2

77. The circumference of a circle is given as 31.4 cm. What is its radius?

A) 15 cm B) 10 cm C) 5 cm

78. If the circumference of a circle is 62.8 cm, what is its diameter?

A) 30 cm B) 10 cm C) 20 cm

79. A car tire has a radius of 35 cm. How far does it travel in one complete revolution?

A) 110.11 cm B) 219.8 cm C) 175.2 cm

80. A wheel makes 100 full rotations. If its radius is 0.5 meters, what total distance does it travel?

A) 314 m B) 157 m C) 628 m

SECTION 5 - SURFACE AREA AND VOLUME

81. The volume of a cuboid is 540 cm^3. If its length is 15 cm and its width is 6 cm, what is its height?

A) 4 cm B) 3 cm C) 6 cm

82. If a cuboid has a volume of 500 cm^3 and one of its sides measures 5 cm, what is the area of the base of the cuboid?

A) 100 cm^2 B) 50 cm^2 C) 25 cm^2

83. A rectangular box has dimensions 12 m × 8 m × 5 m. What is the volume of the box?

A) 420 m^3 B) 480 m^2 C) 400 m^3

84. A cuboid storage container has a length of 10 feet, width of 4 feet, and height of 2 feet. What is its volume?

A) 80 ft^3 B) 90 ft^3 C) 70 ft^3

85. A cuboid has a volume of 1200 cm^3. If its length is 15 cm and its height is 8 cm, what is its width?

A) 14 cm B) 10 cm C) 12 cm

86. The volume of a cube is 512 cm^3. What is the side length of the cube?

A) 4 cm B) 16 cm C) 8 cm

87. If the side of a cube is doubled, how does its volume change?

A) The volume becomes 8 times larger

B) The volume becomes 2 times larger

C) The volume becomes 4 times larger

88. If the volume of a cube is 125 cm^3, what is the length of its side?

A) 15 cm B) 5 cm C) 10 cm

89. A cube has a side length of 7 cm. What is the volume of the cube?

A) 343 cm^3 B) 354 cm^3 C) 245 cm^3

90. A cube has a volume of 729 cm^3. What is the length of each side?

A) 12 cm B) 10 cm C) 9 cm

91. The radius of a cylinder is 7 cm, and its height is 14 cm. What is its surface area?

A) 616 π cm^2 B) 294π cm^2 C) 450 π cm^2

92. The radius of a cylinder is 7 cm, and its height is 14 cm. What is the total surface area of the cylinder?

A) 249 π cm^2 B) 252 π cm^2 C) 294 π cm^2

93. If a cylinder has a radius of 4 cm and a height of 8 cm, what is the surface area?

A) 96 π cm^2 B) 48 π cm^2 C) 192 π cm^2

94. A cylindrical drum has a height of 1.5 m and radius of 0.5 m. Find its lateral surface area.

A) 3.14 m^2 B) 4.71 m^2 C) 7.85 m^2

95. A water tank is in the shape of a cylinder with a radius of 4 meters and a height of 10 meters. How much water can the tank hold?

A) 180 π m^3 B) 160 π m^3 C) 165 π m^3

96. A cylindrical water tank has a radius of 4 m and a height of 10 m. How much water can the tank hold?

A) 160 π m^3 B) 162 π m^3 C) 159 π m^3

97. A cylinder has a radius of 6 cm and height of 15 cm. What is its volume?

A) 542 π cm^3 B) 540 π cm^3 C) 538 π cm^3

98. A cylindrical chimney has a radius of 0.5 m and height of 8 m. If it needs to be covered with insulating material, what is the area to be covered?

A) 9 π m^2 B) 7 π m^2 C) 8 π m^2

99. If the radius of a cylinder is 10 cm and its height is 20 cm, what is the volume?

A) 2000 π cm^3 B) 1980 π cm^3 C) 1000 π cm^3

100. A cylindrical water tank has a radius of 10 m and a height of 20 m. How much water is needed to fill the tank if the tank is 90% empty?

A) 1,570 m^3 B) 5,652 m^3 C) 4,520 m^3

ANSWER KEY

QUE	ANS	QUE	ANS	QUE	ANS	QUE	ANS	QUE	ANS
1	A	**21**	A	**41**	B	**61**	A	**81**	C
2	B	**22**	B	**42**	C	**62**	C	**82**	A
3	A	**23**	A	**43**	C	**63**	A	**83**	B
4	C	**24**	C	**44**	A	**64**	B	**84**	A
5	A	**25**	A	**45**	C	**65**	A	**85**	B
6	C	**26**	B	**46**	B	**66**	A	**86**	C
7	B	**27**	B	**47**	A	**67**	C	**87**	A
8	A	**28**	C	**48**	C	**68**	C	**88**	B
9	B	**29**	C	**49**	C	**69**	A	**89**	A
10	A	**30**	B	**50**	B	**70**	B	**90**	C
11	A	**31**	C	**51**	B	**71**	C	**91**	B
12	B	**32**	B	**52**	C	**72**	B	**92**	C
13	B	**33**	A	**53**	A	**73**	A	**93**	A
14	C	**34**	B	**54**	B	**74**	C	**94**	B
15	A	**35**	A	**55**	C	**75**	B	**95**	B
16	C	**36**	B	**56**	A	**76**	A	**96**	A
17	A	**37**	C	**57**	C	**77**	C	**97**	B
18	C	**38**	B	**58**	B	**78**	C	**98**	C
19	A	**39**	A	**59**	A	**79**	B	**99**	A
20	C	**40**	C	**60**	B	**80**	A	**100**	B