1. The value of $\frac{8^{-1}\times 5^{3}}{2^{-4}}$ is :

   (A) 40 (B) 64

   (C) 125 (D) 250

2. How many square roots of a given perfect square are there ?

   (A) 1 (B) 2

   (C) 3 (D) No square root

3. At a book festival held at Nupilal Complex, a discount of x% was allowed on each book. A book was purchased by a customer for `y, its marked price was :

   (A) $\frac{100y}{100-x}$ (B) $\frac{100y}{100+x}$

   (C) $\frac{100y}{x}$ (D) xy

4. The diagonals of a rhombus are in the ratio 3:4. If its perimeter is 40cm, the length of the shorter diagonal of the rhombus is :

   (A) 3cm (B) 4cm

   (C) 12cm (D) 16cm

5. If $10^{2p}=64$, then 10^{p} equals :

   (A) 8 (B) $\frac{1}{8}$

   (C) $\frac{1}{64}$ (D) 16

6. The area of an equilateral triangle with side 'a' is :

   (A) $\frac{\sqrt{3}}{2}a$ (B) $\frac{\sqrt{3}}{2}a^{2}$

   (C) $\frac{\sqrt{3}}{4}a$ (D) $\frac{\sqrt{3}}{4}a^{2}$

7. If $x^{2}+2x+3$ is divided by $x+2$, then the remainder is :

   (A) 2 (B) 3

   (C) 0 (D) 1

8. One third of a number is greater than one fourth of its successor by 1, the number is :

   (A) 15 (B) 20

   (C) 5 (D) 25

SPACE FOR ROUGH WORK

39. A godown is in the form of a cuboid of measure $60m\times 40m\times 30m$. How many cuboid boxes measure $2m$ length, $2m$ breadth and $2dm$ height can be stored ? :

   (A) 90000 (B) 9000

   (C) 2000 (D) 20000

40. If the diagonal of a square is $20\sqrt{2}$ cm. Its area is :

   (A) 200cm^2 (B) 400cm^2

   (C) 80cm^2 (D) 800cm^2

41. A square sheet of paper is converted into a cylinder by rolling it along its length. The ratio of the base radius to the side of the square is :

   (A) $\frac{1}{2\pi}$ (B) $\frac{\sqrt{2}}{\pi}$

   (C) $\frac{1}{\sqrt{2}\pi}$ (D) $\frac{1}{2}$

42. The square root of 42 lies :

   (A) between 5 and 6

   (B) between 6 and 7

   (C) between 20 and 21

   (D) between 41 and 40

43. If in a sale, the discount given on a washing machine is equal to one-fouth the marked price and the loss due to this discount is 15%, then the ratio of the cost price to the selling price is :

   (A) 3:4 (B) 4:3

   (C) 10:17 (D) 20:17

44. Sanayaima has `387 of `1, 50 paise and 25 paise coins. The numbers of coins are in the ratio 8:4:3. Then the number of 50 paise coins is :

   (A) 288 (B) 90

   (C) 108 (D) 144

45. The circumference of a hemisphere is 132cm, its volumn is :

   (A) 9261cm^3 (B) 17424cm^3

   (C) 38808cm^3 (D) 19404cm^3

SPACE FOR ROUGH WORK

(A) 32 (B) 45
(C) 25 (D) 26

32. At what rate percent per annum will a sum of `3200 amount to `3872 in 2 years ?
(A) 5% p.a (B) 6% p.a
(C) 8% p.a (D) 10% p.a

33. The diagonals of a rhombus are of length 6cm and 8cm, the length of a side of the rhombus is :
(A) 3cm (B) 4cm
(C) 5cm (D) 6cm

34. The nearest perfect square number of 9200 is :
(A) 9025 (B) 9136
(C) 9216 (D) 9225

35. The cube root of $(-125)\times(-3375)$ is :
(A) 25 (B) -25
(C) 75 (D) -75

36. A salesman sells articles at `5 each. He sells 1600 articles in the first week. In the second week, he sells 15% more than the first week and in the third week the sells 10% more than the second week. Calculate the amount received by the salesman if he gets 12% of the price of each article on the first 1000 sold and 15% of the price of each article he sells in excess of 1000.
(A) `3100 (B) `3948
(C) `3176 (D) `3198

37. The value of $(a+5)(a^2-5a+25)$ - $(a-5)(a^2+5a+25)$ is :
(A) a^3+125 (B) 250
(C) a^3 (D) 625

38. All the proper factors of x^6-y^6 is :
(A) $(x^2+y^2)(x+y)(x-y)$
(B) $(x+y)(x^2-xy+y^2)(x^2+y^2)$
(C) $(x+y)(x-y)(x^2-xy+y^2)$ (x^2+xy+y^2)
(D)

SPACE FOR ROUGH WORK

9. `2800 is divided among Sanathoi, Sanamacha and Sanatombi so that Sanathoi receive half as much as Sanamacha and Sanamacha receive half as much as Sanatombi. How much will Sanamacha get ? :
(A) `400 (B) `600
(C) `800 (D) `1200

10. A square flower bed is constructed in the centre of a square garden of side 40m, leaving a path all around the bed. The total cost of laying the flower bed and making the path at the rate of `2.75 and `1.50 per sq. m respectively is `4020. The width of the path is :
(A) 2 m (B) 3 m
(C) 4 m (D) 5 m

11. Meiraba has a total of `1040 as currency notes in denominations of `50, `20 and `10. The ratio of number of `50 notes and `20 notes is 3:5. If he has a total of 36 notes. Then the number of `10 notes is :
(A) 4 (B) 5
(C) 6 (D) 7

12. The sum of two digits of a two digit number is 15. If the number formed by reversing the digits is less than the original number by 27. The original number is :
(A) 78 (B) 87
(C) 69 (D) 96

13. The value of $(3^0+4^{-1})\times 2^2$ is :
(A) 1 (B) 2
(C) 3 (D) 5

14. The length and breadth of a rectangular room are in the ratio 4:3 and the length of the diagonal 20 m. The perimeter of the room is :
(A) 14 m (B) 56 m
(C) 34m (D) 80 m

15. The degree of $(x^4+3x+1)\div(3x^2+1)$ is :
(A) 1 (B) 2
(C) 3 (D) 4

16. In how many years will `1000 @ 10% p.a invested become `1331 as amount at compound interest ?

SPACE FOR ROUGH WORK

(A) 1 (B) 2

(C) 3 (D) 4

17. ABCD is a trapezium in which $AB \| CD$ and AD = 6cm and BC = 8cm. A line PQ is drawn parallel to AB and intersecting AD at P and BC at Q such that AP:PD = 2:3, then QC = :

(A) 2 cm (B) 3.2 cm

(C) 4.8 cm (D) 3 cm

18. The number of sides of a regular polygon whose exterior angle has a measure of 30^0 is :

(A) 6 (B) 8

(C) 10 (D) 12

19. Area of the surface of a sphere of radius '*r*' is :

(A) $2\pi\pi$ (B) $\frac{4}{3}\pi r^3$

(C) $4\pi\pi^2$ (D) $4\pi\pi^3$

20. The area of a square inscribed inside a circle of radius 8cm is :

(A) 128 cm^2 (B) 64 cm^2

(C) 1287.14 cm^2 (D) 256 cm^2

21. The diagonals of a rhombus are 64cm and 48cm. The height of the rhombus is :

(A) 30.5 cm (B) 36.5 cm

(C) 38.4 cm (D) 58.6 cm

22. The product of $\sqrt[6]{2}$ and $\sqrt[4]{5}$ is :

(A) $\sqrt[24]{10}$ (B) $\sqrt[12]{10}$

(C) $\sqrt[6]{250}$ (D) $\sqrt[12]{500}$

23. A man purchased a TV with a marked price of `20000 and salestax of 24% on it. He paid `25000 to the shopkeeper. The money he got back was :

(A) ` 2000 (B) ` 200

(C) ` 4000 (D) ` 800

24. Let P is the principal and interest compounded half yearly at the rate of 20% per annum, then amount after two years will be :

(A) $P\left(\frac{6}{5}\right)^4$ (B) $P\left(\frac{11}{10}\right)^2$

(C) $P\left(\frac{11}{10}\right)^4$ (D) $P\left(\frac{11}{10}\right)$

SPACE FOR ROUGH WORK

25. Present ages of Ahenba and Shilheiba are in the ratio 4:5. Eight years from now the ratio of their age will be 5:6. The present age of Shilheiba is :

(A) 32 years (B) 38 years

(C) 40 years (D) 45 years

26. The point (-3, -6) lies on :

(A) 1st Quadrant (B) 2nd Quadrant

(C) 3rd Quadrant (D) 4th Quadrant

27. The value of $\left(\frac{x^a}{x^b}\right)^{a+b} \times \left(\frac{x^b}{x^c}\right)^{b+c} \times \left(\frac{x^c}{x^a}\right)^{c+a}$ is :

(A) 1 (B) 0

(C) x^{abc} (D) None of these

28. Two smart phones are sold for `11000 each one Samsung and other Micromax. Samsung is sold at a gain of 20% and Micromax at a loss of 10%. The total loss or gain is :

(A) `1200 profit (B) `500 profit

(C) `490 profit (D) `611.12 profit

29. A wholeseller allows a discount of 20% on the marked price to a retailer. The retailer sells a 8% discount on the marked price. The profit percent of the retailer is :

(A) 20% (B) 15%

(C) 12% (D) 8%

30. If $3x - \frac{3}{x} = 3$, then the value of $27\left(x^3 - \frac{1}{x^3}\right)$ is :

(A) 27 (B) -9

(C) -27 (D) 9

31. Today before the exam starts, during the assembly the students are arranged in such away that number of rows is equat to number of students in each row. After finished the arrangement some students come late.They stand beside the arrangement. There are 2051 students in all. The number of late students are :

SPACE FOR ROUGH WORK

46. The least number by which 20184 must be multiplied so as to make the product a perfect square is :

(A) 5 (B) 6

(C) 2 (D) 3

47. If $x+\frac{1}{x}=\sqrt{3}$ then $x^3+\frac{1}{x^3}$ is :

(A) 3 (B) $3\sqrt{3}$

(C) 0

(D) none of these

48. The ratio of the circumference of two circles is 2:3, then the ratio of their areas is :

(A) 2:3 (B) 3:4

(C) 4:9 (D) 6:9

49. The value of $\left(8^2+15^2\right)^{\frac{1}{2}}$ is :

(A) 23 (B) 17

(C) 27 (D) 7

50. A cube and a sphere have equal volume. The ratio of the measure of an edge of the cube to that of the radius of the sphere is :

(A) $\sqrt{44}:\sqrt{7}$ (B) 3:4

(C) $\sqrt[3]{88}:\sqrt[3]{21}$ (D) 2:3

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SPACE FOR ROUGH WORK

25th MVIII
(MATHEMATICS)

Time Allowed 1 hour Maximum Marks : 100

Read the following instructions carefully before you begin to answer the questions.

1. This booklet contains 50 questions in all.
2. All questions are compulsory and each question carries 2 marks.
3. Before you start to answer the questions you must check up this booklet and ensure that it contains all the pages 7 (Seven) and see that no page is missing or repeated. If you find any defect in this Booklet, you must replace it immediately.
4. There will **NOT** be any negative marking for wrong answers.
5. You are required to fill the information on the answer sheet which you will get in the examination hall by **H.B. pencil or BALL point pen.**
6. **Answer Sheet** and **Question Paper** will be supplied in examination hall. After the test is over, you should hand over the answer sheet to the invigilator before leaving the room.
7. You should write your **Name, Roll No.,** carefully on the space provided in the answer sheet. Otherwise you will be awarded **ZERO** mark.
8. If you wish to change your answer, **ERASE** completely the darkened circle by using an **ERASER** and then blacken the new circle. If not erased completely, smudges will be left on the erased circle and the question will be read as having two answer and will be ignored for giving any credit.
9. Answer the questions as quickly and as carefully as you can. Some questions may be difficult and others easy. Do not spend too much time on any question.
10. You are not allowed to leave the examination hall until you are advised to do so by the invigilator.