1. If $3^x + 27 \times (3^{-x}) = 12$ then the value of x is :
   (A) 0 (B) 1
   (C) 2 (D) 3
2. The average age of a woman and her daughter is 24 years. The ratio of their ages is 3:1 respectively. What is the age of the daughter ?
   (A) 12 years (B) 24 years
   (C) 36 years (D) 48 years
3. The diagonals of a quadrilateral bisect each other, then the quadrilateral is a :
   (A) square (B) rectangle
   (C) rhombus (D) parallelogram
4. The price of petrol is increased by 25% due to frequent economic blocked. A man keep his expenditure on petrol unchange, then the decrease in the consumption of petrol is :
   (A) 25% (B) 20%
   (C) 22% (D) 18%
5. Henba sells a watch at a profit of 20%. Johnson bought the same watch at 10% less and sold it at `30 less than the selling price of Henba but still Johnson gain 20%. Then Henba bought the watch at :
   (A) `200 (B) `250
   (C) `300 (D) `350
6. If $5^x + 12^x = 13^x$ then the value of x^3 is :
   (A) 2 (B) 4
   (C) 8 (D) 16
7. A man bought 5 tickets from Imphal to Dimapur and 10 tickets from Imphal to Guwahati. He paid `35000. If the sum of the price of a ticket from Imphal to Dimapur and a ticket from Imphal to Guwahati is `4200, then the fare from Imphal to Guwahati is :
   (A) `1400 (B) `2800
   (C) `3600 (D) `4800
8. The average of first 11 natural numbers is :
   (A) 4 (B) 5
   (C) 6 (D) 7
9. On decresing each side of an equilateral triangle by 2cm , there is a decrease of $4\sqrt{3}\,cm^2$ in its area. The length of each side of the triangle is :

SPACE FOR ROUGH WORK

   (A) `8000 (B) `2100
   (C) `1200 (D) `5600
40. For Puja festival two shops give some discount. First shop gives a discount of 20% of 20% of the marked price and the second shop gives 36% discount of the marked price. Which shop gives more discount? :
   (A) First shop
   (B) Second shop
   (C) They give equal discout
   (D) can not determine
41. The smallest perfect square number which is exactly divisible by 2, 5, 6 and 8 is :
   (A) 900 (B) 3600
   (C) 2500 (D) 400
42. If $\left(\sqrt{3}\right)^5 \times 9^2 = 3^n \times 3\sqrt{3}$, then the value of n is :
   (A) 5 (B) 2
   (C) 3 (D) 4
43. A man went to a railway station from his house at the rate of $2\frac{1}{2}$ km/hr and reached the station and 6minutes late for the train. On the next day he travelled at a speed of 3km/hr, he reached the station and 10 minutes early for the train. What is the distance of the station from his house?
   (A) 8km (B) 6km
   (C) 5km (D) 4km
44. If $3x + \frac{1}{x} = 3$, then the value of $27x^3 + \frac{1}{x_3}$ is :
   (A) 0 (B) 3
   (C) 8 (D) 27

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45. The value of $\left\{\left(\sqrt[n]{x^2}\right)^{\frac{n}{2}}\right\}^2$:

(A) $\frac{1}{x^2}$ (B) x

(C) $x^{\frac{n}{2}}$ (D) x^2

46. DEF is a triangle in which GH is a line segment parallel to DF intersecting EF at G and ED at H such that GF = 3cm, EH = 1.5cm and HD = 4.5cm Then EG = ___ :

(A) 2.5cm (B) 2cm

(C) 1.5cm (D) 1cm

47. The point (-2,-3) lies in

(A) 1st quadrant

(B) 2nd quadrant

(C) 3rd quadrant

(D) 4th quadrant

48. Find the value of $\frac{5^{10+n}\times 25^{3n-5}}{5^{4n+1}\times 5^{3n-1}}$ for any natural number *n*.

(A) 0 (B) 1

(C) 5 (D) 25

49. A polynmial $5x^4+7x^3-4x^2+6x-2$ is divided by a polynomial $d(x)$, the remainder is 5. Then the degree of $d(x)$ is :

(A) 0 (B) 1

(C) 2 (D) 4

50. One angle of a regular polygon inscribe in a circle subtends 600 at the centre. Then the polygon is a/an :

(A) equilateral triangle (B) square

(C) hexagon (D) octagon

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26th 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(Blue or Black).**
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., School name** 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 answers and will be ignored for giving any credit. (only for pencil users)
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.

(A) 17% (B) 35%

(C) $17\frac{5}{17}\%$ (D) $35\frac{5}{17}\%$

18. Which of the following is a pythagorean triplet ?
(A) (6,8 ,12) (B) (10,24,26)
(C) (5, 7, 13) (D) all the above

19. What is the greatest number which divides 392, 486, and 627 so as to leaves the same remainder in each case is :
(A) 47 (B) 43
(C) 37 (D) 34

20. The length of a diagonal of a square is $4\sqrt{2}$ cm, then the perimiter of the square is :
(A) 8cm (B) $8cm^2$
(C) 16cm (D) $16cm^2$

21. A rectangular tin sheet is 12cm long and 5cm broad. It is rolled along its lenght it form a cylinder by making the opposite edge just to touch each other. Then the volume of the cylinder is :
(A) $\frac{60}{\pi}$ cm^3 (B) $\frac{180}{\pi}$ cm^3
(C) $\frac{120}{\pi}$ cm^3 (D) $\frac{100}{\pi}$ cm^3

22. The base of an equilateral triangle is 'a' and its area is $\frac{\sqrt{3}}{4}a^2$, then its altitude is :
(A) $\frac{\sqrt{3}}{4}a$ (B) $\frac{\sqrt{3}}{2}a$
(C) $\frac{1}{2}a$ (D) $\frac{3}{4}a$

23. Sanjoy sells an article for `96 and finds that his loss percent is one-fouth of the cost price. The cost price of the article is :
(A) `480 (B) ` 200
(C) ` 180 (D) ` 160

24. Two cyclist ride towards each other from two places 55km apart at the same time. one riding 12km/hr and the other 10km/hr. When will they meet? :
(A) 1hour 30 min (B) 2 hours
(C) 2hours 30 min (D) 3 hours

25. A school has 60 students in class viii, the number of boys and girls participating the 26th state level Mathematics, Science and English competition is in the ratio 3:2 respectively. The number of girls not participating the competition is 5 more than the number of boys not participating the competition. If the number of boys not participating the competition is 15, then the total number of girls in the class is :
(A) 30 (B) 27
(C) 25 (D) 22

26. Each internal angle of a regular polygon is two times its external angle. The number of sides of the polygon is :
(A) 4 (B) 5
(C) 6 (D) 7

27. What would be the quotient when $x^2+(5+b)x+5b$ is divided by $x+5$ is :
(A) $x+5$ (B) $x+b$
(C) $5+b$ (D) $x+2$

28. There are 30 player of badminton for a badminton single tournament. Every lost player is eleminated from the tournament. There are no tie. What is the minimum number of matches that must played to determine the winner ?
(A) 15 (B) 29
(C) 30 (D) 61

29. The cost of 15 cell phones and 10 watches is `60,675, what is the cost of 3 cell phones and 2 watches ?
(A) `18745
(B) `20225
(C) `12,135
(D) can not determine

30. The average of 5 consecutive odd numbers A, B, C, D and E is 95. What is the product of C and E ? :
(A) 9215 (B) 9405
(C) 9120 (D) 9603

31. If 18^3 is subtracted from the square of a number, the difference so obtained is 3577. What is the number?
(A) 97 (B) 5837
(C) 9407 (D) 1309

32. A bag contains `114 in the form of 1 rupee, 50 paise and 10 paise coins in the ratio 3:4:10. What is the number of 50 paise coins ?

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(A) 76 (B) 72
(C) 56 (D) 48

33. The length of the two diagonals of a rhombus are 16cm and 12cm. If the diagonals are reduced to half then the decrease percent in the area of the rhombus is :
(A) 20% (B) 25%
(C) 50% (D) 75%

34. If $\frac{a}{b}=\frac{x-b}{x-a}$ then the value of x is :
(A) $\frac{2a}{b}$ (B) $\frac{2b}{a}$
(C) $a+b$ (D) $a-b$

35. In a circular lawn of diameter 8m, a greatest possible square swimming pool is made inside the lawn. Find the area of the lawn left aside the pond .
(A) 18m² (B) $18\frac{2}{7}m^2$
(C) 32m² (D) $32\frac{2}{7}m^2$

36. The average age of three persons, Doren, Suresh and Budhi is 84 years. When Herojit joins them the average age becomes 80 years. A new person Johnson whose age is 4 years more than Herojit replace Doren and average age of Suresh, Budhi, Herojit and Johnson become 78 years. What is the age of Doren ?
(A) 50years (B) 60years
(C) 70years (D) 80years

37. The circumference of a circle is 14π unit.The area of the circle is :
(A) 150 sq unit (B) 152 sq unit
(C) 154 sq unit (D) 156 sq uint

38. If $48096\div\sqrt{x}=167\times9$, the value of x is :
(A) 1646 (B) 1432
(C) 1024 (D) 1208

39. In an orchard there were 15 rowa and 20 columns of apple trees. The distance between two trees is 2 metres and a distance of 1 metre is left from all sides of the boundary of the orchard. The cost of fencng the orchard at `150 per 10 metres is :

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(A) 8cm (B) 3cm
(C) 5cm (D) 6cm

10. The value of the difference of $(3x+5y)(9x^2-15xy+25y^2)$ and $(3x-2y)(9x^2+6xy+4y^2)$ is :
(A) $117y^3$ (B) $133y^3$
(C) $125y^3$ (D) $54x^3$

11. Doren and Suresh bought one mobile each of the same price. Doren sold it for `10680 at a loss of 11%. Suresh sold it `2160 more than Doren's selling price. Suresh sold the mobile at a profit or loss of :
(A) 7% profit (B) 11% profit
(C) 7% loss (D) 11% loss

12. The area of a square lawn is 948.64m². The cost of fancing the lawn at `105 per meter is :
(A) `3080 (B) `17936
(C) `4864 (D) `12936

13. If 'a' is a prime number other than 2. Then a² is :
(A) a prime number
(B) an even number
(C) an odd number
(D) none of the above

14. A cylinderical tub of diameter 50cm is full of water. If 22 litres of water is drawn off. The water level in the tub will drop by :
(A) 9cm (B) 9.2cm
(C) 11cm (D) 11.2cm

15. The age of two persons differ by 16 years If 6 years ago the elders one be 3 times as old as the younger one, find their present ages :
(A) 10years and 26years
(B) 15years and 31 years
(C) 14years and 30 years
(D) 36years and 52 years.

16. If three or more parallel lines make equal intercepts on a transversal then they make equal intercepts on any other transversal.
This property is known as :
(A) equal intercept property
(B) proportional intercept property
(C) perpendicular intercept property
(D) equal area property

17. A person bought an article at 15% discount from the marked price and sold it at 15% profit from the marked price. His profit percent is :

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