(C) 123^0 (D) 66^0

44. Euclid belongs to the country :
(A) Egypt (B) Greece
(C) Rome (D) Babylonia

45. The distance of the two points P(2, 1) and Q(-2, -2) is :
(A) $3\sqrt{2}$ unit (B) 3 unit
(C) $2\sqrt{2}$ unit (D) 2 unit

46. In a football match Messi makes 3 goals from 12 stricks. The probability of converting a strike into a goal by Messi is :
(A) 0.5 (B) 0.30
(C) 0.33 (D) 0.25

47. The points A(-4,-1), B(-2,-4), C(4,0) and D(2,3) are the vertices of :
(A) a square (B) a rhombus
(C) a parallelogram but not a rectangle
(D) a rectangle

48. The equation of a line passing through the points (-1,4) and (5, -3) is :
(A) $7x+6y=17$ (B) $6x+7y=14$
(C) $x-2y=13$ (D) None of these

49. What is the probability of picking up a black ball from an urn containing 5 white balls, 3 red balls, 4 black balls and 8 green balls?
(A) $\frac{1}{5}$ (B) $\frac{1}{3}$
(C) $\frac{1}{4}$ (D) $\frac{1}{8}$

50. The length of two chords of a circle are 6cm and 8cm. If the smaller chord is at a distance of 4cm from the centre, the distance of the other chord from the centre is :
(A) 5cm (B) 6cm
(C) 4cm (D) 3cm

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SPACE FOR ROUGH WORK

24th MIX
(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.

1. If the three measures of central tendency are coincident, then the distribution is called :

   (A) grouped distribution

   (B) ungrouped distribution

   (C) normal distribution

   (D) classifed distribution

2. The bisectors of two equal angles of an isosceles triangle form an angle of 1050. What is the measures of unequal angle of the isosceles triangle ?

   (A) 300 (B) 500

   (C) 750 (D) 600

3. The points (1, 1), (-1,-1) and $\left(-\sqrt{3},\sqrt{3}\right)$ are the angular points of :

   (A) a right triangle (B) an isosceles triangle

   (C) an equilateral triangle (D)
   none of these.

4. The degree of a zero polynomial is :

   (A) 0 (B) 1

   (C) 2 (D) not defined.

5. A horse is tied to a post by a rope. it moves along a circular path, keeping the rope tights and describes 132m, when it has traced out and angle of 1080 at the centre, then the length of the rope is :

   (A) 56m (B) 63m

   (C) 70m (D) 84m

6. If we multiply of divide both sides of a linear equation in two variables with a non zero number, then the solution of the resulting equation :

   (A) changes (B) changes in case of multiplication only

   (C) changes in case of division only

   (D) remain unchange

7. If the diagonals of a quadrilateral are bisect each other at right angle then the quadrilateral is :

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   (C) 2 (D) There is no common zero

36. The area of the figure formed by joining the mid-points of the adjacent sides of a rhombus with diagonals 20cm and 16cm is :

   (A) 40 sq. cm (B) 24 sq. cm

   (C) 160 sq. cm (D) 320 sq. cm

37. The area of the triangle whose sides 5cm, 7cm and 10cm is :

   (A) $3\sqrt{66}$ Sq. cm (B) $6\sqrt{33}$ Sq. cm

   (C) $4\sqrt{33}$ Sq. cm (D) $2\sqrt{66}$ Sq. cm

38. In ΔABC, $\angle A = 45^0$, $\angle B = 50^0$ and $\angle C = 85^0$. D, E and F are the mid points of BC, CA and AB respectively. The measure of $\angle FDE$ is__ :

   (A) 40^0 (B) 45^0

   (C) 50^0 (D) 90^0

39. The points $A(2a,4a)$, $B(2a,6a)$ and $C\left(\left\{2+\sqrt{3}\right\}a+5a\right)$ are the vertices of :

   (A) a scalene triangle (B) an isosceles triangle

   (C) an equilateral triangle (D)
   none of these

40. $407^0 30'$

   (A) $\frac{\pi}{24}$ (B) $\frac{\pi}{18}$

   (C) $\frac{\pi}{12}$ (D) $\frac{\pi}{36}$

41. The measure of an angle of a regular polygon of 18 sides is

   (A) 132^0 (B) 202.5^0

   (C) 180^0 (D) 160^0

42. In a circular park of radius 21cm, three boys Tomba, Chaoba and Amuba are sitting at equal distance on its boundary. The distance between any two boys along its boundary is :

   (A) 66cm (B) 132cm

   (C) 21cm (D) 44cm

43. In the fig 9.3 $\angle ACU = \angle ABT$ and $\angle BAC = 66^0$ the measure of $\angle ABT$ is :

   (A) 57^0 (B) 120^0

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(C) 3Median - 2Mean.
(D) 3Median + 2Mean

28. In figure 9.1 if $l \| m$, what is the value of *x*
(A) 60 (B) 50
(C) 45 (D) 30

29. The area of the triangle formed by staight lines $x = y$, $y = 2x$ and $y = 3x + 4$ is :
(A) 4 sq. unit (B) 6 sq. unit
(C) 7.5 sq. unit (D) 11 sq. unit

30. Which of the following is a source of data for primary investigation ?
(A) Magazines (B) Newspaper
(C) Government publication
(D) Questionaries

31. In fig 9.2 E is the mid point of BC, DE=EF, $ED \perp AB$ & $EF \perp AC$. Then ΔABC is ____ :
(A) isosceles triangle (B) scalene triangle (C) equilateral triangle (D) either equilateral or isosceles tirangle

32. If $x = 9 + 4\sqrt{5}$ and $xy = 1$, then $\frac{1}{x^2} + \frac{1}{y^2}$ is :
(A) 81 (B) 322
(C) 97 (D) 2

33. If the sum of 11 consecutive natural numbers is 2791, then the middle number is :
(A) 249 (B) 250
(C) 251 (D) 252

34. ABCD is a square in which E, F, G are the mid points of the sides AB, BC and CD respectively. Then__ :
(A) $\Delta ABF \cong \Delta AFD$
(B) $\Delta FCG \cong \Delta ABF$
(C) $\Delta EBF \cong \Delta DFG$
(D) None of these.

35. The LCM of two polynomials P(x) and Q(x) is equal to the product of the two polynomials, then the common zero of the polynomials P(x) and Q(x) is :
(A) 0 (B) 1

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(A) a square (B) a rhombus
(C) a rectangle (D) a parallelogram

8. The height h of a cylinder is equal to the circumference of the base. Then the volume of the cylinder is :
(A) $\frac{h^3}{4\pi}$ (B) $\frac{h^2}{2\pi}$
(C) $\frac{h^3}{2}$ (D) $\frac{h^3}{2}$

9. G is the centroid of ΔABC whose area is 84cm2. Then the area of ΔBGC is :
(A) 42cm2 (B) 60cm2
(C) 28cm2 (D) 252cm2

10. The bisector of a pair of co-interior angles of a pair of parallel lines :
(A) are parallel to each other (B) intersect at 600
(C) intersect at 900 (D) are opposite rays

11. If $(2k-1, k)$ is a solution of the equation $10x - 9y = 12$, then k = :
(A) 1 (B) 2
(C) 3 (D) 4

12. In a class of 100 students, the average amount of pocket money is `35 per student. If the average is `25 for girls and `50 for boys, then the number of girls in the class is :
(A) 20 (B) 40
(C) 60 (D) 80

13. $\frac{1}{\sqrt{20}-\sqrt{10}} + \frac{1}{\sqrt{30}-\sqrt{20}} + \frac{1}{\sqrt{40}-\sqrt{30}} + \frac{1}{\sqrt{50}-\sqrt{40}} + \frac{1}{\sqrt{60}-\sqrt{50}} - \frac{\sqrt{10}+\sqrt{20}+\sqrt{30}+\sqrt{40}+\sqrt{50}+\sqrt{60}}{5}$
(A) $\frac{-(\sqrt{6}+1)}{\sqrt{10}}$ (B) $\frac{-(\sqrt{6}-1)}{\sqrt{10}}$
(C) 0 (D) $\frac{1-\sqrt{6}}{\sqrt{10}}$

14. The length of a pendulum is 60cm. The angle through which it swings when its tips describes an arc of length 16.5cm is :

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(A) $15^0 30'$ (B) $15^0 45'$

(C) $16^0 15'$ (D) None of these

15. $\sqrt{5}$ is a polynomial known as :

(A) zero polynomial (B) constant polynomial

(C) both (A) and (B) (D) neither (A) nor (B)

16. Which of the following is a French mathematician ?

(A) Euclid (B) Thales

(C) Pythagoras (D) Jules Henry Poincare

17. A cube of edge k is divided into 'n' equal cubes, what is the edge of the new cube ?

(A) $\sqrt[3]{nk}$ (B) $\frac{k}{\sqrt[3]{n}}$

(C) $\sqrt[3]{nk}$ (D) $\frac{\sqrt[3]{n}}{k}$

18. The chord of a circle is equal to the radius of the circle, then the angle formed by the chord at the major arc is :

(A) 1500 (B) 1200

(C) 600 (D) 300

19. The sum, difference, product and quotient of two non-zero real numbers, one rational and other irrational are :

(A) all rational (B) all irrational

(C) either rational or irrational (D) neither rational nor irrational

20. The angle between the hour hand and minute hand of a clock when the time is 8:25 AM is :

(A) 92045/ (B) 102030/

(C) 1050 (D) 107015/

21. The straight lines $x+y=0$, $3x+y=4$ and $x+3y=4$ form a triangle which is :

(A) isosceles triangle (B) equilateral triangle

(C) right triangle (D) scalene triangle.

22. The following table shows the distribution of daily salary (in `) of 1000 workers.

Daily salary in `	Frequency
Less than `50	40
50 - 75	120
75 - 100	200
100 - 125	300
125 - 150	150
150 - 175	100
175 - 200	55
200 - above	35

The percentage of workers with daily salary less than `125 and that of more than ` 150 are respectively. :

(A) 81 & 19 (B) 66 & 34

(C) 66 & 19 (D) 81 & 34

23. If O is the centre of a circle of radius 'r' and AB is a chord of the circle at a distance of $\frac{r}{\sqrt{2}}$ from the centre of O. Then $\angle BAO$ =___ :

(A) 600 (B) 150

(C) 300 (D) 450

24. If the median of an equilateral triangle is 12cm, then area of the equilateral triangle is :

(A) $24\sqrt{3}$ cm^2 (B) $48\sqrt{3}$ cm^2

(C) $36\sqrt{3}$ cm^2 (D) 72cm^2

25. If a point A lies in a line segment BC. Then

(i) BC = $\frac{1}{2}$AB

(ii) AC = 2BC

(iii) AC = BC

(iv) AB + AC = BC

(A) only (i) (B) only (iv)

(C) only (i),(ii)& (iii) (D) All the four given

26. The perimeter of a sector of a circle is equal to half the circumference of the circle. The angle of the sector is :

(A) π^c (B) $\frac{\pi^c}{2}$

(C) $\frac{\pi^c}{2}$ (D) $(\pi+2)^c$

27. Mode is given by :

(A) 2Median - 3Mean

(B) 2Median + 3Mean