



School Level Examination
SLE 2022

GRADE
9

MATHEMATICS

Subject Code:

2	0	1
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Total Questions: 50

Time: 1 hour

DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED TO DO SO

- All questions are compulsory.
- Read the instructions on the **ANSWER SHEET** and fill in your **NAME, CLASS** and **OTHER INFORMATION**.
- To mark your choice of answer by darkening the circles in the **ANSWER SHEET**, use a **BLUE/BLACK BALL PEN** only.
- You **MUST** record your answers on the **ANSWER SHEET** only.
- There are **50 MULTIPLE CHOICE QUESTIONS**.
Use the information provided to choose the **BEST** answer among the four possible options. On your **ANSWER SHEET** fill in the circle that matches your answer.
- Marks are **NOT** deducted for incorrect answers.
- Return the **ANSWER SHEET** to the invigilator at the end of the examination.
- You are **NOT** allowed to use a calculator.
You may use a ruler and spare paper for rough work.

Section A (Logical Reasoning)

(This section contains 10 multiple choice questions. Each question has four choices (A), (B), (C) and (D), out of which only ONE is correct.)

1. Arrange the following in a meaningful order:

Doctor, Fever, Medicine, Medical shop

- | | |
|---|---|
| (A) Medicine, Doctor, Medical shop, Fever | (B) Doctor, Medical shop, Medicine, Fever |
| (C) Fever, Doctor, Medical shop, Medicine | (D) Medical shop, Medicine, Fever, Doctor |

2. If VICTORY is coded as YLFWRUB, how can SUCCESS be coded?

- | | |
|--------------|--------------|
| (A) VXEEEIVV | (B) VXFFHVVV |
| (C) VYEEHVV | (D) VYEFIVV |

3. In a class room the seating plan of seven students P, Q, R, S, T, U and V is as follows:

- | | |
|-------------------------------|------------------------------|
| (i) P sits in between Q and R | (ii) S sits behind T |
| (iii) U sits between R and T | (iv) V sits on the last desk |
| (v) Q sits in front | |

According to the given seating plan, who sits on the third last desk?

- | | |
|-------|-------|
| (A) R | (B) S |
| (C) T | (D) U |

4. Rahul put a timepiece on the table in such a way that at 6.00 pm the hour hand points to North. In which direction the minute hand will point at 9.15 pm?

- | | |
|-----------|----------------|
| (A) West | (B) North |
| (C) South | (D) South-East |

5. Find the odd one out.

- | | |
|-----------|-----------|
| (A) Tulip | (B) Rose |
| (C) Bud | (D) Daisy |

6. Arrange the words given below in a meaningful sequence.

(i) Key (ii) Door (iii) Lock (iv) Room (v) House

- | | |
|---------------------------------|---------------------------------|
| (A) (i), (iii), (ii), (iv), (v) | (B) (iv), (ii), (i), (v), (iii) |
| (C) (v), (i), (ii), (iv), (iii) | (D) (ii), (iv), (i), (iii), (v) |

7. Find the odd one out.

- | | |
|-------------------|------------------|
| (A) Broom : Sweep | (B) Spoon : Feed |
| (C) Nut : Crack | (D) Soap : Bathe |

8. Read the following four statements given in jumbled order:

- (p) Ramesh's father thought he would not do well in his studies.
 (q) Ramesh proved that his father was wrong.
 (r) He went to the best college by scoring 90%.
 (s) His mother believed the opposite.

Which of the following options presents the above statements in proper sequence?

- (A) p, q, s, r (B) p, s, q, r
(C) p, q, r, s (D) q, r, s, p

9. Choose the figure which is different.



10. If FRIEND is coded as HUMJTK, how can CANDLE be written in that code?

- (A) DEQJQM (B) BDQHQK
(C) EDRIRL (D) ESJFME

Section B (Subject Specific)

(This section contains 25 multiple choice questions. Each question has four choices (A), (B), (C) and (D), out of which only ONE is correct.)

11. If $x = 2 - \sqrt{3}$, then

- (A) $x + \frac{1}{x} = 4$ (B) $x^2 + \frac{1}{x^2} = 36$
(C) $x - \frac{1}{x} = 4$ (D) $x^2 - \frac{1}{x^2} = 0$

12. Area of triangle formed by the points $(-2, 0)$, $(4, 0)$ and $(4, 5)$ is _____.

- (A) 30 (B) 6
(C) 15 (D) 5

13. The linear equation $y = 2x + 3$ cuts the y-axis at _____.

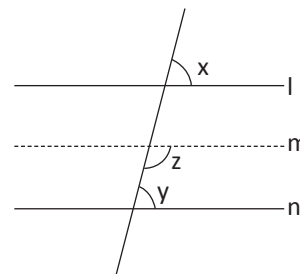
- (A) $(0, 3)$ (B) $(0, 2)$
(C) $\left(\frac{3}{2}, 0\right)$ (D) $\left(\frac{2}{3}, 0\right)$

14. The area of triangle formed by the line $x = 0$, $y = 0$ and $3x + 4y = 12$ is _____.

- (A) 12 (B) 6
(C) 2 (D) None of these

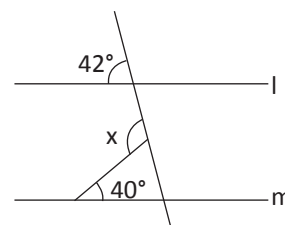
15. In the given figure, $l \parallel m \parallel n$. $x = (p + 10)^\circ$ and $y = (90 - p)^\circ$. Then,

- (A) $z = 25$
(B) $z = 50$
(C) $z = 155$
(D) $z = 130$



16. What is the value of x if $l \parallel m$ as shown in the given figure?

- (A) 108°
(B) 82°
(C) 90°
(D) 98°



17. If $(x + 2, 4) = (5, y - 2)$, then co-ordinates (x, y) are _____.

- (A) (7, 12) (B) (6, 3)
(C) (3, 6) (D) (2, 1)

18. If $P(E) = 0.38$, then probability of event E, not occurring is _____.

- (A) 0.62 (B) 0.38
(C) 0.48 (D) 1

19. 1.363636... when expressed in rational form is _____.

- (A) $\frac{15}{11}$ (B) $\frac{14}{13}$
(C) $\frac{13}{9}$ (D) $\frac{13}{11}$

20. $4\angle A = 6\angle B = 12\angle C$ in $\triangle ABC$, then $\triangle ABC$ is _____ triangle.

- (A) An acute angled (B) A right angled
(C) An obtuse angled (D) A scalene

21. The expression $\frac{1}{\sqrt{5}+\sqrt{6}} + \frac{1}{\sqrt{6}+\sqrt{7}} + \frac{1}{\sqrt{7}+\sqrt{8}} + \frac{1}{\sqrt{8}+\sqrt{9}}$ equals

- (A) $3 - \sqrt{5}$ (B) $3 + \sqrt{5}$
(C) $5 - \sqrt{3}$ (D) $5 + \sqrt{3}$

22. The diameter of a garden roller is 1.6 m and it is 7 m long. The area it covers in 5 revolution is _____.

- (A) 352 m^2 (B) 176 m^2
(C) 170 m^2 (D) 182 m^2

23. ABCD is a cyclic trapezium with $AD \parallel BC$ and $\angle B = 80^\circ$. The other angles of trapezium are _____.

- (A) $\angle A = 100^\circ, \angle C = 100^\circ$ (B) $\angle A = 100^\circ, \angle C = 80^\circ$
(C) $\angle C = 80^\circ, \angle D = 110^\circ$ (D) $\angle A = 80^\circ, \angle D = 100^\circ$

24. If $x = 3 + 2\sqrt{2}$, then

- (A) $\frac{1}{x} = 3 - 2\sqrt{2}$ (B) $x + \frac{1}{x} = 6 + 2\sqrt{2}$
(C) $x - \frac{1}{x} = 4\sqrt{2}$ (D) $x^3 - \frac{1}{x^3} = 30\sqrt{2}$

25. If $a^x = b^y = c^z$ and $b^2 = ac$, then

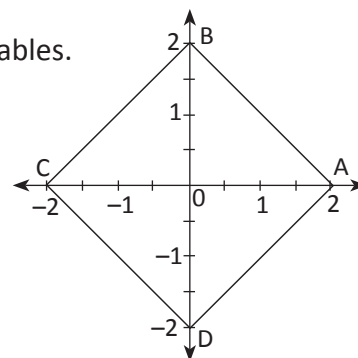
- (A) $y = \frac{2zx}{z+x}$ (B) $y = \frac{z+x}{2z-x}$
(C) $y = \frac{zx}{2(z+x)}$ (D) $y = \frac{z+x}{2zx}$

26. A frog jumps double of its previous jump. If the frog is at $(-3, 0)$ initially and jumps 2 units in the first jump on negative side, then its position after 3rd jump is _____.
- (A) $(-15, 0)$ (B) $(-9, 0)$
(C) $(-17, 0)$ (D) $(-19, 0)$

Read the given text and answer the questions from 27 to 31.

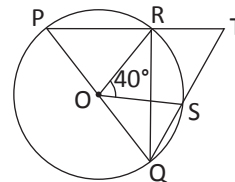
A linear equation in two variables represents a straight line in the plane of variables.

27. Lines which are parallel to the line, $x + y = 0$ are _____.
(A) $x + y = 2$ (B) $x - y = 1$
(C) $-x - y = 1$ (D) $-x + y = 2$
28. The distance between the lines $x + y = 2$ and $x + y = -2$ is _____.
(A) $\sqrt{2}$ (B) $2\sqrt{2}$
(C) $3\sqrt{2}$ (D) 2



29. Which of the given pairs of straight lines is perpendicular?
(A) $x = 0, y = 0$ (B) $x + y = 2, x - y = 2$
(C) $x - y = 2, -x + y = 2$ (D) None of these
30. The image of line $-x + y = 2$ taken along y-axis is _____.
(A) $x - y = 2$ (B) $x + y = 2$
(C) $x + y = -2$ (D) None of these
31. In a parallelogram ABCD, $\angle A = (3x - 20)^\circ$, $\angle B = (y + 15)^\circ$ and $\angle C = (x + 40)^\circ$, then _____.
(A) $x = 30^\circ$ (B) $x = 25^\circ$
(C) $y = 90^\circ$ (D) $y = 85^\circ$

32. In the given figure, O is the centre of the circle in which PQ is the diameter. If $\angle ROS = 40^\circ$, then $\angle RTS$ is _____.
(A) 50° (B) 60°
(C) 70° (D) 80°



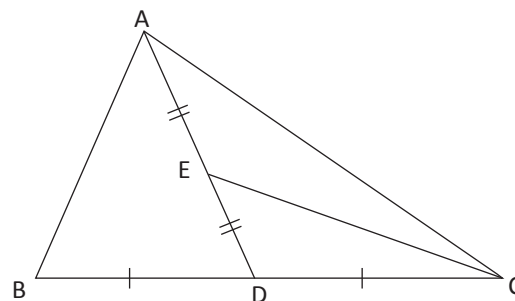
33. A die is thrown 200 times. If the probability of getting an even number is $\frac{2}{5}$, then the number of times an odd number appeared is _____.
(A) 140 (B) 120
(C) 110 (D) 115
34. The given equation is incorrect. Which out of the following interchanges would correct it?
 $16 - 21 \div 7 \times 6 + 3 = 31$
(A) $+$ and \times (B) $-$ and $+$
(C) $-$ and \div (D) \div and \times
35. The mean of marks obtained by 100 students was calculated as 40. Later it was found that a score of 53 was misread as 83. The correct mean is _____.
(A) 39.7 (B) 39.9
(C) 38.4 (D) 36.2

Section C (Competency Based)

(This section contains 15 multiple choice questions. Each question has four choices (A), (B), (C) and (D), out of which TWO are correct.)

36. In the given figure, D is the midpoint of side BC of $\triangle ABC$ and E is the midpoint of AD. Then, _____.

(A) $\text{ar}(\triangle AEC) = \frac{1}{3} \text{ar}(\triangle ABC)$
 (B) $\text{ar}(\triangle AEC) = \text{ar}(\triangle ABD)$
 (C) $\text{ar}(\triangle DCE) = \text{ar}(\triangle AEC)$
 (D) $\text{ar}(\triangle DCE) = \frac{1}{4} \text{ar}(\triangle ABC)$



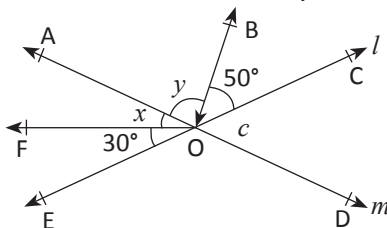
37. $(x + 1)$ and $(x + 2)$ are the factors of the equation $2x^4 + x^3 - 14x^2 - 19x - 6$. Which among the following are also the factors of the given equation?

(A) $(x + 3)$ (B) $(2x + 1)$
 (C) $(2x - 1)$ (D) $(x - 3)$

38. A tent is cylindrical to a height of 3 m and conical above it. Its base radius is 52.5 m and slant height of the conical portion is 53 m. Then, _____.

(A) Surface area of cylindrical portion is 1000 m^2 .
 (B) Surface area of conical portion is 8745 m^2 .
 (C) The area of the canvas required to make the tent is 9735 m^2 .
 (D) The combined surface area of circular portion and conical portion is 9745 m^2 .

39. In the given figure, lines l and m intersect at O and $x : y = 1 : 4$. Then, _____.



(A) $x = 30^\circ$ (B) $x = 20^\circ$
 (C) $\angle AOC = 170^\circ$ (D) $\angle AOC = 130^\circ$

40. A solid cylinder has total surface area of 462 cm^2 . Its curved surface area is one-third of its total surface area. Then,

(A) Height of cylinder is $\frac{5}{2} \text{ cm}$ (B) Height of the cylinder is $\frac{7}{2} \text{ cm}$
 (C) Radius is 7 cm (D) Radius is 5 cm

41. The radii of two cylinder are in ratio 4:6 and their heights are in ratio 5:3. Then,

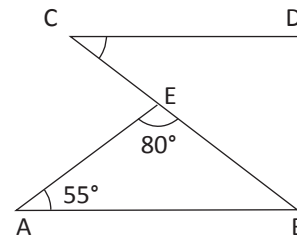
(A) Ratio of their curved surface area is 4:9 (B) Ratio of their volume is 12:24
 (C) Ratio of curved surface area is 10:9 (D) Ratio of volume is 20:27

42. $(x - a)(x - b) =$ _____

(A) $x^2 - (a + b)x + ab$ (B) $x^2 + (a + b)x + ab$
 (C) $x^2 - ax - bx + ab$ (D) $x^2 + ax + bx + ab$

43. The abscissa of a point is positive in _____.
 (A) I quadrant (B) II quadrant
 (C) III quadrant (D) IV quadrant

44. In the given figure, $AB \parallel CD$, $\angle AEB = 80^\circ$ and $\angle EAB = 55^\circ$, then
 (A) $\angle EBA = 45^\circ$
 (B) $\angle ECD = 45^\circ$
 (C) $\angle EBA = 55^\circ$
 (D) $\angle ECD = 55^\circ$



45. If $\frac{y}{x} = 3$, then
 (A) $x = 30^\circ$ (B) $y = 45^\circ$
 (C) $y = 90^\circ$ (D) $x = 60^\circ$

46. The graph of line $x - 2 = 0$ is a line _____.
 (A) Such that the point $(2, -3)$ lies on it
 (B) Parallel to y - axis at a distance of 2 units to the right of y - axis
 (C) Parallel to y - axis at a distance of 2 units to the left of y - axis
 (D) Parallel to x - axis at a distance of 2 units above x - axis

47. The radius of a spherical balloon increases from 7 cm to 14 cm as air is being pumped into it. Find the ratio of surface areas of the balloon.
 (A) 1:6
 (B) 1:8
 (C) 1:4
 (D) 4 times the total surface area of the given balloon

48. A chord of a circle is equal to the radius of the circle. Then, _____.
 (A) The angle subtended by the chord at a point on the minor arc is 120° .
 (B) The angle subtended by the chord at a point on the minor arc is 150° .
 (C) The angle subtended by the chord at a point on the major arc is 30° .
 (D) The angle subtended by the chord at a point on the major arc is 45° .

49. In a circle of radius 5 cm, AB and AC are two chords of equal length, i.e., 6 cm. Then, i.e., _____.
 (A) The perpendicular distance of the point A from BC is 3.6 cm.
 (B) The perpendicular distance of the point A from BC is 3 cm.
 (C) The distance of the centre from BC is 1.4 cm.
 (D) The distance of the centre from BC is 2.0 cm.

50. Two parallelogram stand on equal bases and between the same parallels. The ratio of their areas is _____.
 (A) 2 : 1 (B) 1 : 1
 (C) 2 : 3 (D) Remains same

