*General Guidelines:*

- *The question paper consists of 44 questions divided into four sections A, B, C and D*
- *All questions are compulsory*
- *Section A contains 10 questions which carries 1 mark each*
- *Section B contains 9 questions which carries 2 marks each*
- *Section C contains 7 questions which carries 4 marks each*
- *Section D contains 4 questions which carries 6 marks each*

*Max. Marks: 80*

*Duration: 2.5 Hours*

## Section A

1. A rectangular area having length and breadth equals to 12 m and 8 m respectively is to be bounded by 50 cm broad garden from outside. What is the total area of the garden?

   Option A: 25 cm square

   Option B: 10 cm square

   Option C: 21 cm square

   Option D:  None of these

2. Perimeter of an equilateral triangle is 54 cm. What is the length of its side?

   Option A: 18 cm

   Option B: 27 cm

   Option C: 9 cm

   Option D: None of these

3. A cyclist covers a distance of 15 miles in 2 hours. Calculate his speed.

   Option A: 7 miles per hour

   Option B: 7.5 miles per hour

   Option C: 11 miles per hour

   Option D: None of the above

4. A boat covers a certain distance in 2 hours, while it comes back in 3 hours. If the speed of the stream is 4 kmph, what is the boat's speed in still water?

 Option A: 30 kmph

Option B: 15 kmph

Option C: 20 kmph

Option D: 40 kmph

5. Find the circumference of a circle whose radius is 49 cm.

Option A: 288 cm

Option B: 208 cm

Option C: 308 cm

Option D: 407 cm

6. Digit at the tenths place of 156.89 is

Option A: 1

Option B: 6

Option C: 8

Option D: 9

7. Mixed fraction of the improper fraction 11 /8 is

Option A: $3\frac{3}{8}$

Option B: $2\frac{3}{8}$

Option C $1\frac{3}{8}$

Option D: None of these

8. A student chose a number, multiplied it by 2, then subtracted 138 from the result and got 102. What was the number he chose?

Option A: 121

Option B: 120

Option C: 130

Option D: 122

9. Perimeter of a rectangle having length of 12 cm and width of 10 cm is

Option A: 44 cm

Option B: 43 cm

Option C: 42 cm

Option D: 40 cm

10. Certain number of apples were kept in the refrigerator out of which 10 were ate in the breakfast and 4 were ate in the brunch. Find out the equation representing the number of apples left in the refrigerator at the end of the day

Option A: $(x - 10) - 4$

Option B: $(x + 10) - 4$

Option C: $(x - 4) + 10$

Option D: $(x + 4) - 10$

### Section B

11. In a class room there are 35 boys and 30 girls.

a) Find out the ration of number of girls to total number of students in the class

b) Find out the ratio of number of boys to number of girls in the class room

12. Find the LCM and HCF of 224 and 366.

13. Draw a Straight Line that connects the points(0, 5) and (6, 0).

14. Draw a line segment measuring 15 cm. Mark a point M on it such that the perpendicular bisector of the line segment passes through it.

15. Find the equation of the line passing through the intersection of the lines 6x + 5y = 11, 8x - 5y = 3 and parallel to the line 3x - 2y + 12 = 0.

16. A rectangular shape garden is 1 feet longer than it is wide and has area of 90 sq feet. Find the dimensions of the garden.

17.  Following table shows the number of machines manufactured in a manufacturing company during the years:

| Year | Number of machines manufactured |
|------|--------------------------------|
| 2010 | 100 |
| 2011 | 225 |
| 2012 | 150 |
| 2013 | 300 |
| 2014 | 170 |
| 2015 | 100 |
| 2016 | 210 |

a) Find out the total number of machines manufactured in odd years

b) Find out the ration of the maximum number of machines manufactured to minimum number of laps manufacture along the years 2010 to 2016

c) Find out the ratio of the number of machines manufactured in the year 2012 to the number of machines manufactured in the year 2015

18. The perimeter of an equilateral triangle is 36 yd. What is the length of each side of the triangle?

19. Solve quadratic equation, $x^2 - 13x + 17 = 0$

### Section C

20. The radius and height of a right circular cylinder are 14 cm and 21 cm respectively. Find its volume.

21. X and Y are two stations which are 320 miles apart. A train starts at a certain time from X and travels towards Y at 70 mph. After 2 hours, another train starts from Y and travels towards X at 20 mph. At what time do they meet?

22. Yemen goes to school from his house in three modes of communication – first by foot and then catches a cab to the bus stand and then finally rides a bus to reach his school. The total distance from his school to his house is 15 kms. If the distance walked by feet be 3 kms and then $1 / 4^{th}$ of the distance is covered by cab the remaining being rode by bus, Find out the distance which Yemen covered by car and the distance that he rode by bus.

23. Find out the side and area of a square whose perimeter is 888 sq units

24. The sum of two numbers is 55 and the H.C.F and L.C.M of these numbers are 5 and 120 respectively. Then, find out the sum of the reciprocal of these two numbers

25. Cyra bought a bat and a ball. The cost of the bat is 4 6 / 8 and the cost of the ball is 3 5 / 9. Find the total amount that Cyra paid to the shopkeeper

26. A fence is to be drawn around a circular ground of radius 10m. What will be the total expenditure, if the cost of fencing it is Rs 100/m?

27. Solve for x and y: $\dfrac{3x}{4} - \dfrac{7x}{8} = \dfrac{11}{2}$ and 3x + 4y = 1/2

## Section D

28. A train covered half of the distance between stations A and B at the speed of 48 km/hr, but then it had to stop for 15 min. To make up for the delay, it increased its speed by 3/5 m/sec and it arrived to station B on time. Find the distance between the two stations and the speed of the train after the stop.

29. The outer circumference of a circular track is 250m. Find the cost of leveling the track at the rate of 75p/m^2, if the track is 10m wide everywhere.

30. The distance between two towns is 380 km. At the same moment, a passenger car and a truck start moving towards each other from different towns. They meet 4 hours later. If the car drives 5 km/hr faster than the truck, what are their speeds?

31. A farming field can be ploughed by 6 tractors in 4 days. When 6 tractors work together, each of them ploughs 120 hectares a day. If two of the tractors were moved to another field, then the remaining 4 tractors could plough the same field in 5 days. How many hectares a day would one tractor plough then?

32. A boy travelled by train which moved at the speed of 30 mph. He then boarded a bus which moved at the speed of 40 mph and reached his destination. The entire distance covered was 100 miles and the entire duration of the journey was 3 hours. Find the distance he travelled by bus.