

**PARSHVAA EDU  
MENTOR**

Std.: 10th (ENGLISH)

Sub: Algebra

Time: 2 hour

**AA SCHOOL**

Marks: 40

**Chapters: All**

**Q.1 Attempt any five sub-question from the following: (5)**

- 1) Out of a total income of Rs.7200, Rs.400 is spent on food and health. what is the central angle?
- 2) Express the given information in mathematical form using two variables: the cost of two tables and five chairs is 2200.
- 3) In the example given below determine whether the value given against the quadratic equation is the root of the equation or not.  
 $2p^2 + 5p - 3 = 0$  for  $p = \frac{1}{2}$
- 4) For a certain frequency distribution, median = 156 and Mode = 180 obtain value of mean approximately.
- 5) For 2, 6, 12, 20, 30, ..... find the next four terms.
- 6) The probability of impossible event is .....

**Q.2 Attempt any four sub-questions from the following: (8)**

- 1) Find the first two terms of the following  $t_n = n^3$ , whose  $n^{\text{th}}$  term is given.
- 2) If one root of the quadratic equation  $x^2 - 7x + k = 0$  is 4, then find the value of k. (July-15)
- 3) Without actually solving the simultaneous equation  $3y = 2 - x$  ;  $3x = 6 - 9y$  , decide whether it has unique solution, no solution or infinitely many solutions.
- 4) Solve the following quadratic equation by factorization method.  $x^2 + 5x + 6 = 0$
- 5) Without actually solving the simultaneous equation  $\frac{x}{2} + \frac{y}{3} = 4$ ;  $\frac{x}{4} + \frac{y}{6} = 2$ , decide whether it has unique solution, no solution or infinitely many solutions.
- 6) Find the sum of 7, 11, 15, 19, ..... up to 60 terms

**Q.3 Attempt any three of the following sub-questions: (9)**

- 1) Form the quadratic equation with real coefficients, if its one of the root is  $2\sqrt{3} - 4$
- 2) If two coins are tossed then find the probability of the events: i) At least one tail turns up ii) No head turns up iii) At the most one tail turns up. (Mar 15)
- 3) Without plotting the graphs, find the point of intersection of the lines  $2x + 5y = 13$  and  $4x - 9y = 7$ .
- 4) The sum of the measures of angles of a triangle is  $180^\circ$ , of a quadrilateral is  $360^\circ$ , of a pentagon is  $540^\circ$ , and so on. Assuming this pattern, find the sum of the measures of angles of a dodecagon (i.e. polygon with 12 sides).
- 5) Solve the following quadratic equation by using the formula  $x^2 + 2x - 7 = 0$

**Q.4 Attempt any two sub-question from the following:**

**(8)**

- 1) Represent the following data using frequency curve.

Electricity bill in a month (in Rs.)	200 - 400	400 - 600	600 - 800	800 - 1000
No. of families	362	490	185	63

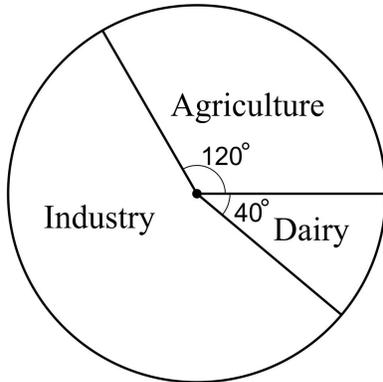
- 2) Solve the following simultaneous equations :

$$ax + by = a - b;$$

$$bx = ay + a + b$$

where, 'a' and 'b' are constants, where both are not zero.

- 3) The following diagram represents the sector wise loan amount in crores of Rs. distributed by a bank. From the information answer the following questions.



- (a) If the dairy sector receives Rs. 20 crores, then find the total loan distributed.  
(b) Find the loan amount for agriculture sector and also for industrial sector.  
(c) How much additional amount did industrial sector receive more than agriculture sector ?

**Q.5 Attempt any two sub-question from the following:**

**(10)**

- 1) Each coefficient in equation  $ax^2 + bx + c = 0$  is obtained by throwing a fair die. Find the probability that the equation has real roots.  
2) Rainfall (in mm) recorded in 50 cities in a particular region on a particular day is given below:

Rainfall (in mm)	36 - 39	40 - 43	44 - 47	48 - 51	52 - 55	56 - 59	60 - 63
Number of cities	6	7	10	7	7	9	4

Find mean rainfall on that day in a city by 'shift of origin and scale method'.

- 3) For an A.P.  $\frac{1}{6}, \frac{1}{4}, \frac{1}{3}, \dots$  find  $t_{20}$  and  $s_{10}$