Pre Board MT -02

INFINITY THINK BEYOND..... AN EDUCATIONAL INSTITUTE

10 th

Syllabus: Mock Test 02 : Ch – Quadratic Equations and Arithmetic Progression

Time: 90 min **Maximum marks :40**

INSTRUCTIONS TO THE STUDENTS

1 . Read each question carefully .
2. Mark of each question is mention in front of question .
3. Attempt one question in internal choice based question .
4. Use of calculators is not allowed.

SECTION A

(Questions 1 – 10 carry 1 marks)

1	The next (4th) term of the A.P. $\sqrt{7}$, $\sqrt{28}$, $\sqrt{63}$,.. is : (a) $\sqrt{70}$ (b) $\sqrt{84}$ (c) $\sqrt{97}$ (d) $\sqrt{112}$	**1**
2	Two A.P.s have the same common difference. The first term of one A.P is -1 and that of the other is -8. Find the differences between their 4th term. (a)1 (b) -7 (c) 7 (d) 9	**1**
3	If the roots of $x^2+4mx+4m^2-m-1=0$ are real , then (a)m= -1 (b) $m \leq -1$ (c) $m \geq -1$ (d) $m \geq 0$	**1**
4	The zeroes of the quadratic polynomial $f(x) = x^2+99x+127$ are (a)Both negative (b) Both positive (c) Both equal (d) none	**1**
5	The common differences of the given AP $\frac{1}{2x}, \frac{1-4x}{2x}, \frac{1-8x}{2x}$, ... is (a)-2x (b)-2 (c)2 (d) 2x	**1**
6	The value of 'a' for which $ax^2+x+a = 0$ has equal and positive roots is: (a)2 (b)-2 (c) $\frac{1}{2}$ (d) $\frac{-1}{2}$	**1**
7	15th term of the A.P. x-7 , x-2 , x+3 ,.. is (a) X-77 (b) x+53 (c) x+63 (d) x+73	**1**
8	If one roots of $5x^2+13x+k=0$ is the reciprocal of the other root , then k is (a)6 (b) 5 (c) 4 (d)13	**1**
9	If the roots of the equation $ax^2+bx+c=0$, $a \neq 0$ are real , then which of the following relation is true? (a) $b^2 > \frac{ac}{4}$ (b) $b^2 < ac$ (c) $ac = \frac{b^2}{4}$ (d) $ac \leq \frac{b^2}{4}$	**1**
10	Two statements are given, one lablled Assertion (A) and the other labelled Reason(R) Select the correct answer from the options (A), (B), (C) and (D) as given below . (a)Both A and R are true and R is the correct explanation for A. (b) Both A and R are true and R is not the correct explanation for A. (c) A is true but R is false. (d) A is false but R is true **Assertion (A):** $x^2+7x+12$ has no real zeroes. **Reason (R):** A quadratic polynomial can have at the most two zeroes.	**1**

SECTION B

(Questions 11 – 13 carry 2 marks)

11	Solve the equation by factorization method. $\frac{2x}{(x-4)} + \frac{(2x-5)}{(x-3)} = \frac{25}{3}$ **Or** Find the value of P for which the quadratic equation $(2p+1)x^2 - (7p+2)x + (7p-3) = 0$ has equal roots.	**2**
12	The speed of a boat in still water is 8km/hr. It can go 15km upstream and 22km downstream in 5 hours . Find the speed of the stream.	**2**
13	Determine k so that k^2+4k+8 , $2k^2+3k+6$, $3k^2+4k+4$ are three consecutive terms of A.P .	**2**

SECTION C

(Questions 14 – 15 carry 3 marks)

14	(a)The total cost of a certain length of cloth is Rs 200. If the piece was 5m longer and each metre of cloth costs Rs 2 less, the cost of the piece would have remained unchanged . How longer is the piece and what is its original rate per metre ? **OR** (b) The perimeter of a rectangular field is 82m and its area is 400 square metre. Find the length and breadth of the rectangle.	**3**
15	To fill a swimming pool two pipes are used.If the pipe with larger diameter is used for 4 hours and the pipe with smaller diameter for 9 hours, only half the pool can be filled. How long would it take for each pipe to fill the pool separately, if pipe of smaller diameter takes 10 hours more than the larger diameter to fill the tank.	**3**

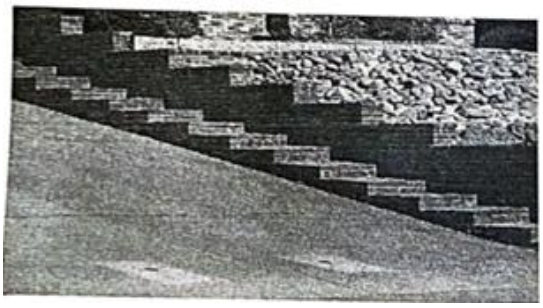
SECTION D

(Questions 16 – 17 carry 5 marks)

16	(a)Divide 56 into four parts in A.P. such that the ratio of the product of the extremes to the product of means is 5: 6 . **OR** (b)If the sum of the first p terms of an A.P is q and the sum of first q terms is P , then find the sum of first (p+q) terms.	**5**
17	If the roots of $(a^2+b^2)x^2-2(ac+bd)x+(c^2+d^2)=0$ are equal , Prove that $\frac{a}{c} = \frac{c}{d}$	**5**

SECTION E

(Questions 18 – 19 carry 4 marks)

18	In the construction of a school , laborer stacked bricks to form a staircase- like structure . The bottom row has 50 bricks , and each row above has 2 bricks less than the row below it . One the basis of the above information answer the following questions :  (i) Identity the sequence of the number of bricks in the stack and the n^{th} term of the sequences ? (ii) How much shorter is the 12^{th} row than the 4^{th} row? (iii) (a)What is the total number of bricks used for 10 rows? Or (b)How many rows can be constructed with 560 bricks ?	**4**
19	Raj and Ajay are very close friends . Both the families decide to go to Ranikhet by their own cars . Raj's car travels at a speed of x km/hr while Ajay's car travels 5km/h faster than Raj 's car . Raj took	**4**

	4 hours more than Ajay to complete the journey of 400 km. Based on the above information and referring to the above diagram , answer the following questions. (i)What will be the distance covered by Ajay's car in two hours? (in terms of x) (ii)Form a quadratic equation to describe the speed of Raj's car? (iii)(a)What is the speed of Raj's car? Or (b)How much time took Ajay to travel 400km?