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PRACTICE PAPER 02 (2025-26)
CHAPTER 05 ARITHMETIC PROGRESSION

SUBJECT: MATHEMATICS   MAX. MARKS : 40

CLASS : X   DURATION : 1½ hrs

General Instructions:
(i).   **All** questions are compulsory.
(ii). This question paper contains 2**0** questions divided into five Sections A, B, C, D and E.
(iii). **Section A** comprises of **10 MCQs** of **1 mark** each. **Section B** comprises of 4 questions of **2 marks** each. **Section C** comprises of 3 questions of **3 marks** each. **Section D** comprises of 1 question of **5 marks** each and **Section E** comprises of 2 Case Study Based Questions of **4 marks** each.
(iv). There is no overall choice.
(v).   Use of Calculators is not permitted

SECTION – A
Questions 1 to 10 carry 1 mark each.

1. The first term of an A.P. is p and the common difference is q, then its 10th term is:
    (a) q + 9p   (b) p – 9q   (c) p + 9q   (d) 2p + 9q

2. Which term of the AP: 21, 42, 63, 84… is 210?
    (a) 9th   (b) 10th   (c) 11th   (d) 12th

3. Two APs have the same common difference. The first term of one of these is –1 and that of the other is – 8. The difference between their 4th terms is:
    (a) 1   (b) –7   (c) 7   (d) 9

4. The 21st term of the AP whose first two terms are –3 and 4 is
    (a) 17   (b) 137   (c) 143   (d) –143

5. If p – 1, p + 3, 3p – 1 are in AP, then p is equal to _____.
    (a) 3   (b) 4   (c) 2   (d) none of these

6. The common difference of an A.P., whose nth term is $a_n = (3n + 7)$, is:
    (a) 3   (b) 7   (c) 10   (d) 6

7. The next term of the AP $\sqrt{18}, \sqrt{50}, \sqrt{98}, ...$ is
    (a) $\sqrt{146}$ (b) $\sqrt{128}$ (c) $\sqrt{162}$ (d) $\sqrt{200}$

8. The common difference of the AP $\dfrac{1}{p}, \dfrac{1-p}{p}, \dfrac{1-2p}{p}, ...$ is
    (a) p   (b) – p   (c) –1   (d) 1

In the following questions 9 and 10, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:
(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
(b) Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
(c) Assertion (A) is true but reason (R) is false.
(d) Assertion (A) is false but reason (R) is true.

9. **Assertion (A):** The sum of first 15 terms of AP 10, 20, 30... is 1200.

    Reason (R): Sum of first n terms in an A.P. is given by the formula: $S_n = \dfrac{n}{2}[2a + (n-1)d]$

10. Assertion (A): For AP: 4, 8, 12..., 52 is the 13th term.
  Reason (R): In an AP, $a_n = a + (n − 1)d$.

SECTION – B
Questions 11 to 14 carry 2 marks each.

11. Find 10th term from end of the AP 4, 9, 14, ... , 254.

12. Determine k so that $4k + 8$, $2k^2 + 3k + 6$ and $3k^2 + 4k + 4$ are three consecutive terms of an AP.

13. Determine the A.P. whose third term is 16 and 7th term exceeds the 5th term by 12.

14. Which term of the A.P. 3, 15, 27, 39, ... will be 120 more than its 21st term?

SECTION – C
Questions 15 to 17 carry 3 marks each.

15. The sum of n terms of an AP is $5n^2 – 3n$. Find the AP and also its 10th term.

16. Find the middle terms of the A.P. 7, 13, 19 .... 241.

17. The first term of an A.P. is –5 and the last term is 45. If the sum of the terms of the A.P. is 120, then find the number of terms and the common difference.

SECTION – D
Questions 18 carry 5 marks.

18. An AP consists of 21 terms. The sum of the three terms in the middle is 129 and of the last three is 237. Find the AP.
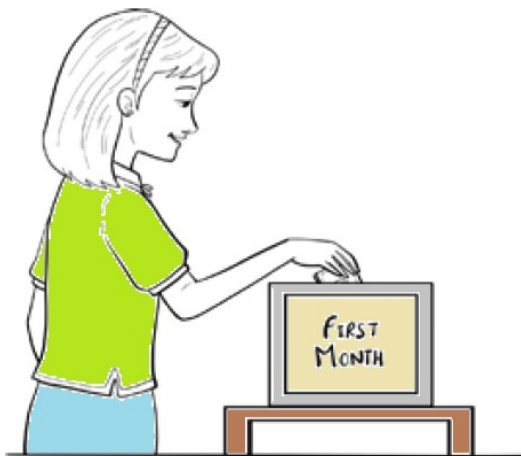
OR

The sum of four consecutive numbers in A.P. is 32 and the ratio of the product of the first and last terms to the product of two middle term is 7 : 15. Find the numbers.

SECTION – E (Case Study Based Questions)
Questions 19 to 20 carry 4 marks each.

19. Ananya saves Rs. 24 during the first month Rs. 30 in the second month and Rs. 36 in the third month. She continues to save in this manner.

On the basis of above information answer the following questions.

(i) Whether the monthly savings of Ananya form an AP or not? If yes then write the first term and common difference.

(ii) What is the amount that she will save in 15th month?

(iii) In which month, will she save Rs. 66?

<div align="center">OR</div>

What is the common difference of an AP whose nth term is $8 - 5n$?

20. Mohan is an auto driver. His autorickshaw was too old and he had to spend a lot of money on repair and maintenance every now and then. One day he got to know about the EV scheme of the Government of India where he can not only get a good exchange bonus but also avail heavy discounts on the purchase of an electric vehicle. So, he took a loan of 1,18,000 from a reputed bank and purchased a new autorickshaw.

Mohan repays his total loan of 118000 rupees by paying every month starting with the first instalment of 1000 rupees.
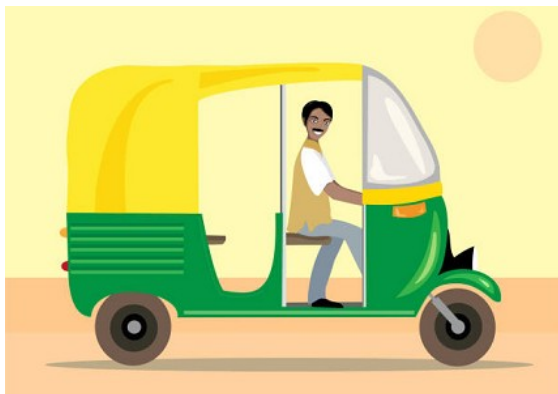
(i) If he increases the instalment by 100 rupees every month, then what amount will be paid by him in the 30th instalment? [1]

(ii) If he increases the instalment by 100 rupees every month, then what amount of loan does he still have to pay after 30th instalment? [2]

<div align="center">**OR**</div>

(ii) If he increases the instalment by 200 rupees every month, then what amount would he pay in 40th instalment? [2]

(iii) If he increases the instalment by 100 rupees every month, then what amount will be paid by him in the 100th instalment [1]

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