

Time : 1 Hour 30 Minute

STD 10 Maths
Chapter Based Test

Total Marks : 50

Section A

* Choose the right answer from the given options. [1 Marks Each] [7]

1. The 7th term of an AP is 4 and its common difference is -4. What is its first term?

- (A) 16 (B) 20 (C) 24 (D) 28

2. Mark the correct alternative in the following:

If the sum of n terms of an A.P. is $3n^2 + 5n$ then which of its terms is 164?

- (A) 26th (B) 27th (C) 28th (D) None of these.

3. Choose the correct answer from the given four options:

The first four terms of an AP, whose first term is -2 and common difference is -2, are:

- a. -2, 0, 2, 4
b. -2, 4, -8, 16
c. -2, -4, -6, -8
d. -2, -4, -8, -16

4. Mark the correct alternative in the following:

If the sum of P terms of an A.P. is q and the sum of q terms is p, then the sum of p + q terms will be:

- a. 0
b. p - q
c. p + q
d. -(p + q)

5. Mark the correct alternative in the following:

If 18th and 11th term of an A.P. are in the ratio 3 : 2, then its 21st and 5th terms are in the ratio:

- a. 3 : 2
b. 3 : 1
c. 1 : 3
d. 2 : 3

6. Mark the correct alternative in the following:

The nth term of an A.P., the sum of whose n terms is S_n , is

- a. $S_n + S_{n-1}$
b. $S_n - S_{n-1}$
c. $S_n + S_{n+1}$
d. $S_n - S_{n+1}$

7. The common difference of the AP $\frac{1}{3}, \frac{1-3b}{3}, \frac{1-6b}{3}, \dots$ is:

- a. $\frac{1}{3}$

- b. $\frac{-1}{3}$
- c. b
- d. $-b$

* A statement of Assertion (A) is followed by a statement of Reason (R).

[3]

Choose the correct option.

8. **Directions:** In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following:

Assertion: If the first term of an A.P. is 4, last term is 81 and the sum of the given terms is 510. Then, there are 12 terms in the given A.P.

Reason: If a is the first term, l is the last term and n is the number of terms of an A.P., then $S_n = \frac{n}{2}(a + l)$

- a. Assertion and Reason both are correct statements and Reason is the correct explanation of Assertion.
- b. Assertion and Reason both are correct statements but Reason is not the correct explanation of Assertion.
- c. Assertion is correct statement but Reason is wrong statement.
- d. Assertion is wrong statement but Reason is correct statement.

9. **Directions:** In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following:

Assertion: Let the positive numbers a, b, c be in A.P., $\frac{1}{bc}, \frac{1}{ac}, \frac{1}{ab}$ are also in A.P.

Reason: If each term of an A.P. is divided by abc , then the resulting sequence is also in A.P. are also in A.P.

- 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

10. **Directions:** In the following questions, the Assertions (A) and Reason(s) (R) have been put forward. Read both the statements carefully and choose the correct alternative from the following:

Assertion: The common difference of the A.P. 19, 18, 17, is 1.

Reason: Let $a_1, d_2, a_3, a_4, \dots$ is an A.P. Then, common difference of this A.P. will be the difference between any two consecutive terms, i.e., common difference $(d) = a_2 - a_1$ or $a_3 - a_2$ or $a_4 - a_3$ and so on.

- a. Assertion and Reason both are correct statements and Reason is the correct explanation of Assertion.
- b. Assertion and Reason both are correct statements but Reason is not the correct explanation of Assertion.
- c. Assertion is correct statement but Reason is wrong statement.
- d. Assertion is wrong statement but Reason is correct statement.

* Answer the following questions in one sentence. [1 Marks Each]

[4]

11. Find the sum of first 22 terms of the AP 8, 3, - 2, ...

12. Find the sum of the first 1000 positive integers.
13. Which of the following form an AP? Justify your answer.
0, 2, 0, 2,
14. Which of the following form an AP? Justify your answer.
-1, -1, -1, -1 ...

Section B

* Given section consists of questions of 2 marks each.

[10]

1. Find the 12th term from the end of the following arithmetic progressions:
3, 8, 13,, 253.
2. Find the sum of the following arithmetic progressions:
50, 46, 42,, to 10 terms.
3. Find $a_{30} - a_{20}$ for the A.P.
-9, -14, -19, -24,
4. Find the 12th term from the end of the A.P. -2, -4, -6, ..., -100.
5. For what value of p are $2p + 1$, 13, $5p - 3$ are three consecutive terms of an A.P.?

Section C

* Given section consists of questions of 3 marks each.

[12]

1. Which term of the A.P 21, 18, 15, ... is - 81? Also, is any term 0? Give reason for your answer.
2. Write the first five terms of the following sequences whose nth terms are:
 $a^n = (-1)^n 2^n$.
3. Let there be an A.P. with first term 'a', common difference 'd'. If a_n denotes in nth term and S_n the sum of first n terms, find.
 S_{22} , if $d = 22$ and $a_{22} = 149$
4. Find the sum of all integers between 100 and 550, which are divisible by 9.

Section D

* Given section consists of questions of 5 marks each.

[10]

1. The 10th and 18th terms of an A.P. are 41 and 73 respectively. Find 26th term.
2. The nth term of an AP is $(7 - 4n)$. Find its common difference.

Section E

* Case study based questions

[4]

1. In a class the teacher asks every student to write an example of A.P. Two friends Geeta and Madhuri writes their progressions as -5, -2, 1, 4, ... and 187, 184, 181,.... respectively. Now, the teacher asks various students of the class the following questions on these two

progressions. Help students to find the answers of the questions

(i) Find the 34th term of the progression written by Madhuri.

(ii) Find the sum of common difference of the two progressions.

(iii) Find the sum of first 10 terms of the progression written by Geeta.

OR

Which term of the two progressions will have the same value?

