UDAAN 2025

Maths

DHA : 01

Arithmetic Progressions

Q1 The nth term of the A.P a,3a,5a....is
(A) na (B) (2n-1)a
(C) (2n+1)a (D) 2na

Q2 In an A.P., if d = –4, n = 7 and a_n=4, then a is equal to
(A) 6 (B) 7
(C) 20 (D) 28

Q3 The common difference of the A.P. $\frac{1}{p}, \frac{1-p}{p}, \frac{1-2p}{p}$..... is
(A) 1 (B) $\frac{1}{p}$
(C) -1 (D) $-\frac{1}{p}$

Q4 The first term of 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

Q5 The 11th term of an A.P. $-5, \frac{-5}{2}, 0, \frac{5}{2}$....., is
(A) -20 (B) 20
(C) -30 (D) 30

Q6 The value of x for which 2x, (x + 10) and (3x + 2) are the three consecutive terms of an A.P. is
(A) 6 (B) –6
(C) 18 (D) –18

Answer Key

Q1	(B)	Q4	(C)
Q2	(D)	Q5	(B)
Q3	(C)	Q6	(A)

Hints & Solutions

Q1 Text Solution:

first term=a

common difference=2a

$a_n = a + (n-1)d$

$a_n = a + (n-1)2a$

$= a + 2an - 2a$

$= 2an - a$

$= (2n-1)a$

Video Solution:

Q2 Text Solution:

In an AP, an=a+(n–1)d

⇒ 4=a+(7–1)(–4) [by given conditions]

⇒ 4=a+6(–4)

⇒ 4+24=a

∴ a=28

Video Solution:

Q3 Text Solution:

$d = \frac{1-p}{p} - \frac{1}{p}$

$= \frac{-p}{p}$

$= -1$

Video Solution:

Q4 Text Solution:

10th term = p + (10 – 1)q

a_{10} = p + 9q

Video Solution:

Q5 Text Solution:

$d = \frac{-5}{2} - \left(-5\right)$

$= \frac{-5}{2} + 5$

$= \frac{5}{2}$

$a_{11} = a + \left(11-1\right)d$

$= \left(-5\right) + 10 \times \frac{5}{2}$

$= -5 + 25$

$= 20$

Video Solution:

Q6 Text Solution:

Given 2x, x + 10 and 3x + 2 are in A.P.

Then we'll have,

2(x + 10) = 2x + 3x + 2

2x + 20 = 5x + 2

3x = 18

x = 6.

Video Solution: