

OBJECTIVE MATHEMATICS

Multiple Choice Type Questions

By OP Gupta (9650 350 480)

[Based on Arithmetic Progressions & Co-ordinate Geometry]

Maximum Marks: 30

Time Allowed: 60 Minutes

Q01. The coordinates of A, B, C are (6,3), (3,5), (4,-2) respectively, and P(h,k) is any point. The ratio of the area of Δ PBC and ABC is:

A) $\frac{|h+k-2|}{7}$ B) $\pm \frac{h+k-2}{7}$

C) Options A & B both D) None of these

Q02. The coordinates of B & C are (1,-2), (2,3), and A lies on the line $2x+y-2=0$. The area of Δ ABC is 8sq. units then, vertex A may be:

A) (1,2) B) (-1,4)
C) $\left(\frac{1}{7}, \frac{13}{14}\right)$ D) $\left(\frac{25}{7}, -\frac{36}{7}\right)$

Q03. The point P divides the join of A(-5,1) and B(3,5) in the ratio $k:1$ internally. Points Q and R are (1,5) and (7,2) respectively. Area of Δ PQR is 2 for $k =$:

A) 19/5 B) 31/9
C) 23 D) 19

Q04. The numbers a, b, c, d, e form an AP, then the value of $a-4b+6c-4d+e$ is:

A) 1 B) 2
C) 0 D) None

Q05. Let T_r be the r^{th} term of an AP whose first term is a and common difference is d . If for some positive integers $m, n, m \neq n; T_m=1/n, T_n=1/m$, then $a-d$ equals:

A) 0 B) $\frac{1}{m} + \frac{1}{n}$
C) 1 D) $\frac{1}{mn}$

Q06. Three nos. in AP are such that their sum is 18 and sum of their squares is 158. The greatest among them is:

A) 10 B) 11
C) 12 D) None

Q07. The first and last term of an AP are a and l respectively. If S be the sum of all the terms of this AP, then its common difference is:

A) $\frac{l^2-a^2}{2S-(l+a)}$ B) $\frac{l^2-a^2}{2S-(l-a)}$
C) $\frac{l^2+a^2}{2S+(l+a)}$ D) $\frac{l^2+a^2}{2S-(l+a)}$

Q08. Let S_n denote the sum of first n terms of an AP. If $S_{2n}=3S_n$ then, the ratio S_{3n}/S_n is equal to:

A) 4 B) 6
C) 8 D) 10

Q09. If a_1, a_2, a_3, \dots is an AP such that its given that $a_1 + a_5 + a_{10} + a_{15} + a_{20} + a_{24} = 225$, then $a_1 + a_2 + a_3 + \dots + a_{23} + a_{24}$ is equal to:

A) 909 B) 75
C) 750 D) 900

Q10. If the ratio between the sums of n terms of two APs is $(3n+8):(7n+15)$, then the ratio between their 12^{th} terms is:

A) 16:7 B) 74:169
C) 7:16 D) None

Q11. If the ratio between the n^{th} terms of two APs is $(2n+8):(5n-3)$, then the ratio of the sums of their n terms is:

A) $(2n+18):(5n+1)$ B) $(5n-1):(2n+18)$
C) $(2n+18):(5n-1)$ D) None

Q12. Let a_1, a_2, a_3, \dots be the terms of an AP. If $\frac{a_1+a_2+\dots+a_m}{a_1+a_2+\dots+a_p} = \frac{m^2}{p^2}, m \neq p$ then, $\frac{a_6}{a_{21}}$ equals:

A) 41/11 B) 7/2
C) 2/7 D) 11/41

Q13. If n numbers are inserted in between two numbers a and b in such a way that together they all form an AP (including a and b both). If the arithmetic mean of numbers a and b be A and the sum of n numbers inserted between a and b be S, then:

A) $A = nS$ B) $S = nA$
C) $A = n^2S$ D) $S = n^2A$

Q14. The first, second and middle terms of an AP are a, b, c respectively. Their sum is equal to:

A) $\frac{2(c-a)}{b-a}$ B) $\frac{2c(c-a)}{b-a} + c$
C) $\frac{2c(b-a)}{c-a}$ D) $\frac{2b(c-a)}{b-a}$

Q15. The sum of integers from 1 to 100 which are divisible by 2 or 5, is:

A) 3000 B) 3010
C) 3150 D) 3050