

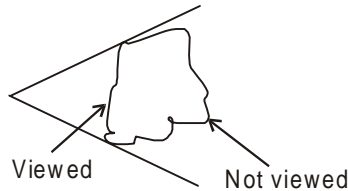
PASSAGE - 1

A circle, made of opaque material, is to be just viewed from its plane.

$S(n)$ = no. of all possible positions required to view whole circle.

$f(n)$ is the sum of angles made by circle at n positions for just viewing condition.

Hint : A normal man can view all things with in 180° angles. Any object can be viewed tangentially by your eye at any position.



- Q.1** Find the possible value of a for which equation $ax^2 + 6x + S = 0$ has real roots.
 (A) $(-\infty, 0)$ (B) $(-\infty, 3)$ (C) $(5, \infty)$ (D) $(-\infty, \infty)$
- Q.2** Minimum value of S is-
 (A) 2 (B) 3 (C) 4 (D) 5
- Q.3** Find the area function $A(n)$ contained by curve $y = f(n)$ between $n = 6$ to $n = n$
 (A) $\left(\frac{n(n-4)}{2} - 6\right)\pi$ (B) $\left(\frac{n(n-6)}{2} - 6\right)\pi$ (C) $\left(\frac{n(n-2)}{2} - 6\right)\pi$ (D) $\left(\frac{n^2}{2} - 18\right)\pi$
- Q.4** The minimum value of $\left[\frac{\text{Above area}}{n}\right] = \left[\frac{A(n)}{n}\right]$ occurs at $n =$
 (A) 2 (B) ∞ (C) 3 (D) 4
- Q.5** For equation $A(n) = 0$ which is (are) true related to its roots α, β ?
 (A) $AM \geq GM \geq HM$ (C) $AM \leq HM \leq GM$ (D) $AM \leq GM \leq HM$ (D) None of these
- Q.6** Minimum value of $(-2n^2 - 15n + 16)$ in the domain S
 (A) - 11 (B) - 12 (C) - 97/8 (D) - 98/8
- Q.7** Maximum value of $(-2n^2 - 6n + 9)$ in the domain S
 (A) - 47 (B) - 27 (C) $\frac{27}{2}$ (D) 0
- Q.8** Find the locus when we have to view always $\frac{\pi}{2}$ are length of circle $x^2 + y^2 = 1$
 (A) $x^2 + y^2 = 3$ (B) $x^2 + y^2 = 2$ (C) $x^2 + y^2 = 4$ (D) $x^2 + y^2 = 8$