Quadratic Equation and Inequalition(Inequalities)

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C MCQs with One Correct Answer

1) If l, m, n are real, $l \neq m$, then the roots by the equation: (1979)
$(l-m)\,x^2 - 5\,(l+m)\,x - 2\,(l-m)$
   a) Real and equal
   b) complex
   c) Real and unequal
   d) None of the above

2) The equation $x+2y+2z = 1$ and $2x+4y+4z = 9$ have (1979)
   a) Only one solution
   b) Only two solutions
   c) Infinite number of solutions
   d) None of these.

3) if x, y and z are real and different and $u = x^2 + 4y^2 + 9z^2 - 6yz - 3zx - 2xy$, then u is always. (1979)
   a) non negative
   b) zero
   c) non positive
   d) none of the above

4) let $a > 0, b > 0$ and $c > 0$.Then the roots of the equation $ax^2 + bx + c = 0$ (1979)
   a) are real and negative
   b) have negative real parts
   c) both (a) and (b)
   d) none of the above

5) Both the roots of the equations $(x-b)\,(x-c) + (x-a)\,(x-c) + (x-a)\,(x-b) = 0$ are always (1980)
   a) positive
   b) real
   c) negative
   d) none of these.

6) The least value of the expression $2log_{10}x - log_x(0.01)$,for $x > 1$,is (1980)
   a) 10
   b) 2
   c) -0.01
   d) none of these.

7) If $\left(x^2 + px + 1\right)$ is a factor of $\left(ax^3 + bx + c\right)$, then (1980)
   a) $a^2 + c^2 = -ab$
   b) $a^2 - c^2 = -ab$
   c) $a^2 - c^2 = ab$
   d) none of these

8) The no of real solution in equation $\left|x^2\right| - 3\,|x| + 2 = 0$ is (1982 - 2 Marks)
   a) 4
   b) 1
   c) 3
   d) 2

9) Two towns A and B are 60 km apart. A school is to built to serve 150 students in a town B. If the total distance to be travelled by all 200 students is to be as small as possible, then the school should be build at (1982 - 2 Marks)
   a) town B
   b) 45 km from town A
   c) town A
   d) 45 km from town B

10) If p, q, r are any real numbers, then (1982 - 2 Marks)
   a) $\max(p,q,r) < \max(p,q)$
   b) $\min(p,q) = \frac{1}{2}\,(p+q-|p-q|)$
   c) $\max(p,q) < \min(p,q,r)$
   d) none of these

11) The largest interval for which $x^{12} - x^9 + x^4 - x + 1 > 0$ is (1982 - 2 Marks)
   a) $-4 < x \leq 0$
   b) $0 < x < 1$
   c) $-100 < x < 100$
   d) $-\infty < x < \infty$

12) The equation $x - \frac{2}{x-1} = 1 - \frac{2}{x-1}$ has (1984 - 2 marks)
   a) no root
   b) one root
   c) two equal roots
   d) infinitely many roots

13) If $a^2 + b^2 + c^2 = 1$, then $ab + bc + ca$ lies in the interval (1984 - 2 Marks)
   a) $[\frac{1}{2}, 2]$

b) $[-1, 2]$
c) $[-\frac{1}{2}, 1]$
d) $[-1, \frac{1}{2}]$

14) If $log_{0.3}(x-1) < log_{0.09}(x-1)$,then x lies in the interval (1985 - 2 Marks)

a) $(2, \infty)$
b) $(1, 2)$
c) $(-2, -1)$
d) none of these

15) If α, β are the roots of $x^2 + px + q = 0$ and α^4, β^4 are the roots of $x^2 - rx + s = 0$. then the equation $x^2 - 4qx + 2q^2 - r = 0$ has always (1989 - 2 Marks)

a) two real roots
b) two positive roots
c) two negative roots
d) one positive and one negative root