Name: _____	**Subject:** Mathematics	**Class:** 10th	**Time:** 80 minutes	Total Marks:	**30**
Chapter No.02	**MJDexpert.com**			Obtained marks	

Note: Please attempt any 10 short questions from Question 2. Also, attempt both parts of Question 3. Cutting and removal of any content is strictly prohibited.

Q.No.1 Choose the correct Answer. $(6 \times 1 = 6)$

1. If α, β are the roots of equation $3x^2 + 5x - 2 = 0$ then $\alpha + \beta$ is equal to:			
a) $\frac{-5}{3}$	b) $\frac{-3}{5}$	c) $\frac{-2}{5}$	d) $\frac{2}{5}$
2. Product of cube roots of unity is:			
a) 0	b) 1	c) -1	d) 3
3. Each of the complex roots of unity is_____ of the other.			
a) Roots	b) Product	c) Cube	d) Square
4. The nature of the roots of equation $ax^2 + bx + c = 0$ is determined by:			
a) 1	b) 3	c) 5	d) 7
5. If α, β are the roots of the equation $x^2 - x - 1 = 0$ then the product of 2α and 2β is:			
a) -2	b) 2	c) 4	d) -4
6. Radii of circle are all equal:			
a) All equal	b) Double of the Diameter	c) All unequal	d) Half of any chord

Q.No.2: Give the Short Answers. $(8 \times 2 = 16)$

i.	Evaluate: $(-1 + \sqrt{-3})^8 + (-1 - \sqrt{-3})^8$
ii.	Find discriminant: $9x^2$-30x+25=0
iii.	if α,β are roots of Equation lx^2+mx+n=0 Find: $\alpha^3\beta^3 + \alpha^2\beta^2$
iv.	Find quadratic equation having roots $3\omega \; and \; 3\omega^2$
v.	Define symmetric function.
vi.	if α,β are roots of equation $4x^2 - 3x + 6 = 0$. Find the sum and product of the roots.
vii.	Prove that the product of cube roots of unity is zero.
viii.	Use synthetic division to find quotient and reminder when a$(x^3 + 3x^2 + 2) \div (x - 2)$.

Q.No.3: Give the long answers. $(4 + 4 = 08)$

a)	Prove that: $x^3 + y^3 + z^3 - 3xyz = (x + y + z)(x + \omega y + \omega^2 z)(x + \omega^2 y + \omega z)$
b)	Use synthetic division to find the values of l and m, if (x-1) and (x+1) are the factors of the polynomial x^3-$3lx^2$+2mx+6

"Simplicity is the ultimate sophistication"