Name: _____	**Subject:** Mathematics	**Class:** 11th	**Time:** 80 minutes	Total Marks:	**40**
Chapter No.04	**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.

Question.No.01:- Choose the correct answer. **(10x01=10)**

		A.	B.	C.	D.
i.	The polynomial $ax^2 + bx + c = 0$ is quadratic if	$a \neq 0$	$a \neq 0, b \neq 0$	$a > 0$	$a < 0$
ii.	Solution set of the equation $x^2 - 3x + 2 = 0$ is	{-1,2}	{1,-2}	{-1,-2}	{1,2}
iii.	The degree of the polynomial $6x^4 + 7x^2 - 2 = 0$ is	1	2	3	4
iv.	Techniques for solving a quadratic equation are	1	2	3	4
v.	Sum of cube root of unity is	1	0	3	2
vi.	Product of all the four roots of unity is	-1	1	2	3
vii.	$(1 + \omega - \omega^2)^8$	256	256ω	-256ω	-256
viii.	Shortcut method of long division of a polynomial is called	Factor theorem	Reminder theorem	Synthetic division	None of these
ix.	Formula of formation an equation is	$x^2 + sx + p$	$x^2 + sx - p$	$x^2 - sx + p$	$x^2 - sx - p$
x.	If $b^2 - 4ac > 0$ and not a perfect square then root will be.	Rational	Imaginary	Irrational	Equal

Question.No.02:-Solve all parts. **(02x10=20)**

i. Solve by completing square Method $2x^2 + 12x - 110 = 0$

ii. Solve $4.2^{2x+1} - 9.2^x + 1 = 0$

iii. Show that the roots of $x^2 + (mx + c)^2 = a^2$ will be equal , if $c^2 = a^2(1 + m^2)$.

iv. Show that $x^3 - y^3 = (x - y)(x - \omega y)(x - \omega^2 y)$

v. Evaluate $(1 + \omega - \omega^2)(1 - \omega + \omega^2)$

vi. If α, β are the roots of $3x^2 - 2x + 4 = 0$ find the value of $\alpha^3 + \beta^3$

vii. Evaluate $(1 + \omega - \omega^2)(1 - \omega + \omega^2)$

viii. Define reciprocal equation.

ix. When $x^4 + 2x^3 + kx^2 + 3$ is divided by $x - 2$, the remainder is 1.Find the value of K.

x. Use the factor theorem to determine if the first polynomial is a factor of the second polynomial

$x - 2$, $x^3 + x^2 - 7x + 1$

Question.No.03:- **(02x05=10)**

a) Solve the following equation by factorization $\frac{a}{ax-1} + \frac{b}{bx-1} = a + b$

b) If the roots of $px^2 + qx + q = 0$ are "α" and "β" then prove that $\sqrt{\frac{\alpha}{\beta}} + \sqrt{\frac{\beta}{\alpha}} + \sqrt{\frac{q}{p}} = 0$