Name: _____	**Subject:** Mathematics	**Class:** 11th	**Time:** 80 minutes	Total Marks:	**40**
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.

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

		A.	B.	C.	D.
i.	If $A \subseteq B$ and $B \subseteq A$ then:	$A = \emptyset$	$A = B$	$B = \emptyset$	$A \cap B = \emptyset$
ii.	If a function $f: A \to B$ is such that range $f = B$ then f is called:	Injective	Surjective	Into	Periodle
iii.	Every rational number is:	natural	rational	irrational	prime
iv.	Drawing conclusion premises believed to be true is called:	Induction	Deduction	Proposition	Contradiction
v.	How many inverse elements correspondence to each element of group:	At least two	Only one	At least one	Two
vi.	A set may be described in words is called :	Tabular method	Set – builder method	Descriptive method	None of these
vii.	Let p→ q be a given conditional then its inverse is	$\sim p \to \sim q$	$\sim q \to \sim p$	$p \to q$	$q \to p$
viii.	If the elements of two sets can be paired in such a way that each elements is paired only and one element is called:	Equal sets	Equivalent sets	Order of sets	None of these
ix.	A set having only one element is called:	Empty set	Singleton set	Null set	Equal set
x.	$\{1,2,3,4 \ldots \ldots . n\}$ Is called	Infinite set	terminating	subset	None of these

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

i.	Show $A \cap B$ by Venn diagram when A and B are overlapping.
ii.	Construct the truth table of $(p \wedge \sim p) \to q$.
iii.	What is tautology?
iv.	Find the inverse of the following relation $y = \{(1,3), (2,5), (3,7), (4,9), (5,11)\}$
v.	Write the power set of $\{+, -, \times, \div\}$
vi.	Using Venn diagram show that $A \cap B' = A$ if $A \cap B = \emptyset$.
vii.	vii) Define Semi-group.
viii.	viii) Show that following statement is tautology: $\sim (p \to q) \to p$.
ix.	ix) Write the converse, inverse and contrapositive of the following $\sim p \to \sim q$.
x.	x) Define the descriptive and tabular method with examples.

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

a)	Convert any of De-Morgan's law into logical form.
b)	Let A, B and C are any non-empty sets. Then show that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$.