

Name: _____						
Subject: Physics		Class: 10 <sup>th</sup>	Time: 80 minutes	Total Marks:	40	
Chapter No.		MJDexpert.com			Obtained marks	

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

### Objective-Section

**Q. 1 Encircle the correct answer. (10x1=10)**

1. The particles emitted from a hot metal surface are:  
(A) Holes (B) Protons (C) Neutrons (D) Electrons
2. Cathode rays have a charge:  
(A) Negative (B) Positive (C) Neutral (D) +ve and -ve
3. The deflecting plate is a component of:  
(A) Radio (B) CRO (C) Fluorescent tube (D) Computer
4. The cathode ray oscilloscope consists of main parts:  
(A) 2 (B) 3 (C) 4 (D) 5
5. George Boole invented:  
(A) Boolean Algebra (B) Arithmetic Algebra (C) Geometry (D) Mean Algebra
6. Equation of "AND" operation is:  
(A)  $x = A \cdot B$  (B)  $x = A + B$  (C)  $x = A - B$  (D)  $x = A/B$
7. If  $x = A + B$ , then  $x = 0$  when:  
(A)  $A=0, B=0$  (B)  $A=1, B=1$  (C)  $A=0, B=1$  (D)  $A=1, B=0$
8. Number of input terminals in NOT gate is:  
(A) 1 (B) 2 (C) 3 (D) 4
9. NOT gate is also called:  
(A) Inverter (B) Amplifier (C) Transistor (D) Conductor
10. Which gate is used in making a burglar alarm?  
(A) OR gate (B) AND gate (C) NOT gate (D) NAND gate

### Subjective-Section

**Q.2 Write short answers of any ten of the following questions: (10x2=20)**

- I. Which two factors increase the rate of thermionic emission?
- II. Shortly explain the deflection of electrons by a magnetic field.
- III. Write the different parts of a cathode ray oscilloscope.
- IV. Write down the uses of a cathode ray oscilloscope.
- V. Define analogue quantities and give an example.
- VI. What is the relation between digital electronics and digital quantities?
- VII. Differentiate between ADC and DAC.
- VIII. What are the three universal logic gates?
- IX. Write the names of basic operations in digital electronics.
- X. Write the truth table of an OR gate and also draw its circuit diagram.
- XI. NAND gate is the reciprocal of an AND gate. Discuss briefly.
- XII. How does an LDR work?

**Q.No.3 Long Question:**

**(5+5=10)**

- a) Write a note on the cathode ray oscilloscope.
- b) Write the Boolean equation and truth table for an AND gate.