Name: _____	**Subject:** Physics	**Class:** 9th	**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.

1. **Q.1: Tick (✔) the correct answer.**
2. **The apparatus that converts light energy into electrical energy is called:**
   A) Electric Bulb B) Electric Generator C) Photo Cell D) Electric Cell
3. **The typical efficiency of a solar cell is:**
   A) 3% B) 6% C) 8% D) 12%
4. **One kilojoule is equivalent to:**
   A) 10 J B) 100 J C) 1000 J D) 10,000 J
5. **If the speed of an object is doubled, its kinetic energy will:**
   A) Stay the same B) Double C) Quadruple D) None of these
6. **The speed of light is approximately:**
   A) 1.5×10^8 m/s B) 3×10^8 m/s C) 3.5×10^8 m/s D) 2.8×10^8 m/s
7. **The term for the rate at which work is performed is:**
   A) Energy B) Torque C) Power D) Momentum
8. **If the speed of an object is tripled, its kinetic energy will be:**
   A) Three times B) Six times C) Nine times D) Four times
9. **If a machine accomplishes 10 joules of work in 5 seconds, its power output is:**
   A) 2 W B) 10 W C) 25 W D) 50 W
10. **One megawatt is equal to:**
    A) 10^2 W B) 10^4 W C) 10^6 W D) 10^8 W
11. **The expression for potential energy is:**
    A) F = ma B) P = W/t C) mgh D) ½ mv^2

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12. **Provide short answers to any ten (10) of the following questions.**
13. **Differentiate between mechanical energy and sound energy.**
14. **Explain Einstein's mass-energy equivalence principle.**
15. **Write the formulas for kinetic energy (K.E.) and potential energy (P.E.).**
16. **Define the concept of work and state its formula.**
17. **Describe the process of energy generation from nuclear fuels.**
18. **What is energy? Identify and explain two types.**
19. **Discuss the importance of wind energy.**
20. **Under what conditions can a force perform work? Discuss.**
21. **A machine completes 9 J of work in 3 seconds. What is its power output?**
22. **Identify two drawbacks of thermal pollution.**
23. **Define efficiency and provide its calculation formula.**
24. **Create a flowchart that illustrates the energy conversion process.**

Answer the following questions in detail.

1. **Define potential energy and derive its formula.**
2. **Discuss in detail two major non-renewable energy sources.**