**The City School**

North Nazimabad Boys Branch

**Worksheet # 4**

**Class 11 /W(Work Energy and Force)**

**Sir Faisal**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_**

*MCQ Questions*

**1. When a book of mass 2kg was pushed along the horizontal surface of the table, the friction force measured was 5N. When the book was pushed along the same table with a force of 9N, it moved with a constant**
a. acceleration of 2.0 m/s2
b. acceleration of 25 m/s2
c. speed of 2.0 m/s
d. speed of 2.5 m/s2

**2. A balloon filled with gas has a total weight of 1800N. The balloon descends with a constant speed of 3 m/s. What is the resultant force acting on the balloon during descent?**
a. 0N
b. 600N
c. 1800N
d. 5400N

**3. A crane lifts a load of 8000N through a vertical distance of 20m in 4s. What is the average power during this operation?**
a. 100W
b. 1600W
c. 40000W
d. 640000W
**4. A toy car A moving with a speed of 30 m/s has a kinetic energy of 900J. Another toy car B has twice the mass of toy car A. If toy car B moves with a speed of 15 m/s, what is the kinetic energy of toy car B?**a. 450J
b. 900J
c. 1800J
d. 3600J
**5. A 60W fluorescent lamp converts half the electrical energy supplied into light energy. How much light energy does it emit in 1 minute?**
a. 30 W
b. 60 W
c. 1800 W
d. 3600 W

**6. A electric motor is used to lift a 200N load through 3m in 5s. If the motor has an efficiency of 40%, what is the total electrical energy used by the motor in one second?**
a. 48 W
b. 300 W
c. 1200W
d. 3000W

**7. A trolley of mass 1.5kg is placed on a smooth table. If a constant force of 6N acts on the trolley, the acceleration produced by the force will be**a. 0.25 ms-2
b. 4 ms-2
c. 4.5 ms-2
d. 7.5 ms-2

**8. An object of mass 2kg moves with uniform velocity when a constant force of 10N acts on it. When the force is increased to 20N, the acceleration will be**
a. 4 ms-2
b. 5 ms-2
c. 6 ms-2
d. 10 ms-2

**9. The weight of a rocket in outer space is zero because**
a. its mass becomes zero
b. there is no frictional force
c. there is no gravitational force
d. the rocket is stationary

**10. A ball of mass 0.2kg is thrown to a height of 15m. What is the change in its gravitational potential energy? (g=10N/kg)**
a. 0.3 J
b. 3.0 J
c. 7.5 J
d. 30 J
e. 75 J

**11. A boy pushes a toy cart along a level road and then lets it go. As the cart is slowing down, the biggest energy change is from**
a. chemical to heat
b. chemical to kinetic
c. heat to kinetic
d. kinetic to chemical
e. kinetic to heat

**12. A girl weighing 400N takes 4s to run up the stairs 3m high. What is her average speed?**
a. 0.75 m/s
b. 0.8 m/s
c. 1.25 m/s
d. 1.33 m/s

**13. How much potential energy does she gain? (from question 12)**a. 120 J
b. 200 J
c. 400 J
d. 1200 J
e. 2000 J

**14. A block of mass 2kg slides from rest through a distance of 20m down a frictionless slope 10m high. What is the kinetic energy of the block at the bottom of the slope? (g = 10ms-2)**
a. 20 J
b. 40 J
c. 200 J
d. 400 J
e. 800 J

**15. What are the main energy changes in a hydroelectric power station?**
a. electrical -> kinetic -> heat
b. heat -> electrical -> kinetic
c. kinetic -> light -> electrical
d. kinetic -> potential -> light
e. potential -> kinetic -> electrical