QUIZEN – Work and Energy (9P04)

Learning Level 1	Learning Level 2	Learning Level 3
Q - Remembering (knowledge-based questions) U - Understanding (comprehension-based questions)	I - Applying (application-based questions) Z - Analyzing (analysis-based questions)	E - Evaluating (evaluation-based questions) N - Creating (creation-based questions)

Learning Level 1

1. Define the term 'work' and write its SI unit.
2. State the law of conservation of energy.
3. What is meant by the term 'kinetic energy'? Write its formula.
4. Explain the difference between potential and kinetic energy.
5. How does the principle of conservation of energy apply to a swinging pendulum?

Learning Level 2

6. A block of mass 2 kg is pulled with a force of 20 N for a distance of 5 m. Calculate the work done on the block.
7. A car of mass 1000 kg is moving with a velocity of 20 m/s. What is its kinetic energy?
8. A ball of mass 0.5 kg is thrown vertically upwards with a velocity of 10 m/s. Calculate its potential energy when it reaches the maximum height.
9. A force of 50 N is applied to push a box of mass 10 kg for a distance of 2 m. Calculate the work done by the force.
10. A ball of mass 0.1 kg is thrown horizontally with a velocity of 5 m/s. What is its kinetic energy?

Learning Level 3

11. A machine can lift a load of 500 N to a height of 5 m in 10 seconds. Calculate the power of the machine.
12. A cyclist rides up a hill with a height of 100 m in 5 minutes. Calculate the power required by the cyclist if he weighs 60 kg.
13. A ball is thrown with a velocity of 20 m/s at an angle of 45 degrees to the horizontal. Calculate its maximum height and the total time it takes to hit the ground.
14. A pendulum swings back and forth between two points. Explain how the potential and kinetic energy inter-convert during its motion.
15. A roller coaster is designed in such a way that it starts with a steep drop, gaining a large amount of kinetic energy, and then climbs up a hill, losing kinetic energy as it gains potential energy. Explain how the principle of conservation of energy applies to this roller coaster ride.