

1. A student pushed with a force of 20N on a 1000 Kg rock. The rock does not move. The work done by the student is

- (a) 1000 J (b) 2000 J (c) 20000 J (d) 0 (e) 400 J

No displacement \rightarrow no work \rightarrow **Correct answer is (d)**

2. Work done by **static** friction is

- (a) parallel to surface (b) perpendicular to surface
(c) positive (d) negative (e) zero

Static \rightarrow no displacement \rightarrow no work \rightarrow **Correct answer is (e)**

3. If the net work done on an object is positive, the kinetic energy

- (a) Decreases (b) remains the same (c) is zero (d) increases

$W = \Delta K \rightarrow$ if $W > 0$, K increases \rightarrow **Correct answer is (d)**

4. Al and Jenny are pushing boxes across a rough floor. Al has a heavier box and has to push twice as hard as Jenny to move it, but Jenny has to move her box twice as far as Al does. Who does the most work?

- (a) Al (b) Jenny (c) They do the same work (d) Need more info

$W = Fd \rightarrow$ Correct answer is (c)

5. You wish to accelerate a car from rest at constant acceleration. Neglect air resistance and friction. The car's engine must

- (a) maintain a constant power output
(b) deliver ever decreasing power
(c) deliver ever increasing power

Constant a means constant F . $P = Fv$, since there is acceleration v is increasing, therefore power must increase \rightarrow Correct answer is (c)