

**KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS**  
**DEPARTMENT OF PHYSICS**

**PYP – 001-03**

**I.D. #**

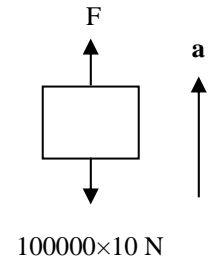
**QUIZ No. 2**

**Name: Key**

1- A rocket of mass 100000 Kg undergoes an acceleration of  $2 \text{ m/s}^2$  vertically upward. Calculate the force being developed by the rocket engine. (Make the free forces diagram)

**Answer:**

$$\sum F = ma \Rightarrow (F - mg) = m a \Rightarrow F - 100000 \times 10 = 100000 \times 2$$
$$F = 200000 + 1000000 = 1200000 \text{ N}$$



2- When the bird is going to fly upward, the two forces of third Newton's law are:

- A. Wings push the air upward, and the air pushes the wings downward.
- B. The air pushes the wings backward, and wings push the air forward.
- C. Wings push the air downward, and the air pushes the wings upward.
- D. The air pushes the wings to the backward, and the wings push the air upward.
- E. Wings push the air backward, and the air pushes the wings upward.