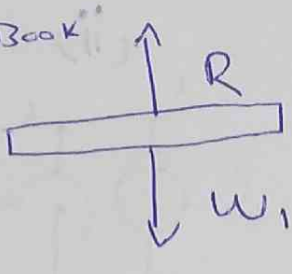
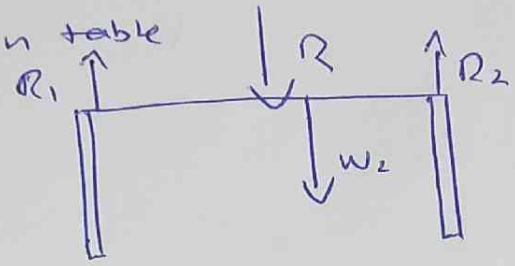
Ex 20.2 (1)

1) i) forces on Book



Reaction force upward ↑
and Book weight downward ↓

forces on table



R_1, R_2, reaction forces from earth upward. ↑
W_2 weight of table downward. ↓
R, Reaction force from Book downward ↓

ii) As Book and table in stationary then $a = 0$,

a) $R = W_1$ ⟶ forces on Book

b) $R_1 + R_2 = W_2 + R$ → forces on table

2) i) when coin moving downward with constant velocity, then $a = 0$

take up direction +ve

$R - W = ma$

$R = W$ net force = 0

ii) when speed increase downward, then

$a \neq 0$ as direction of body downward

$R - W = -ma$

$R + ma = W$

So $W > R$

'net force

$ma = W - R$

$F_{net} = W - R$ downward

iii) As velocity decrease, deceleration produce (3)

$R - W = -m(a)$ → due to deceleration
↳ due to downward motion

$R - W = ma$

$R = W + ma$

$R > W$

$F_{net} = ma = R - W$ upward

Q3 forces equilibrium means, net force $= 0 \Rightarrow a = 0$

i) As car move from rest to a certain speed so, $a \neq 0$ and Forces are not equilibrium. No

ii) As motorcyclist travel with constant velocity so $a = 0$. And forces are balanced. Yes

iii) A parachuist descending at constant rate. so $a = 0$. forces are Balanced. Yes

iv) As lorry pickup speed so $a \neq 0$. No

v) puck sliding across a smoth ice rink, so no friction forces here. speed remain constant so $a = 0$. Yes

vi) Book is resting. $a = 0$: Yes

vii) aeroplane flying at constant speed also it losing weight with constait rate so speed remain same (constant). $\Rightarrow a = 0$ Yes

viii) As car travel at constant speed, but it change its direction so velocity chge. And $a \neq 0$. No