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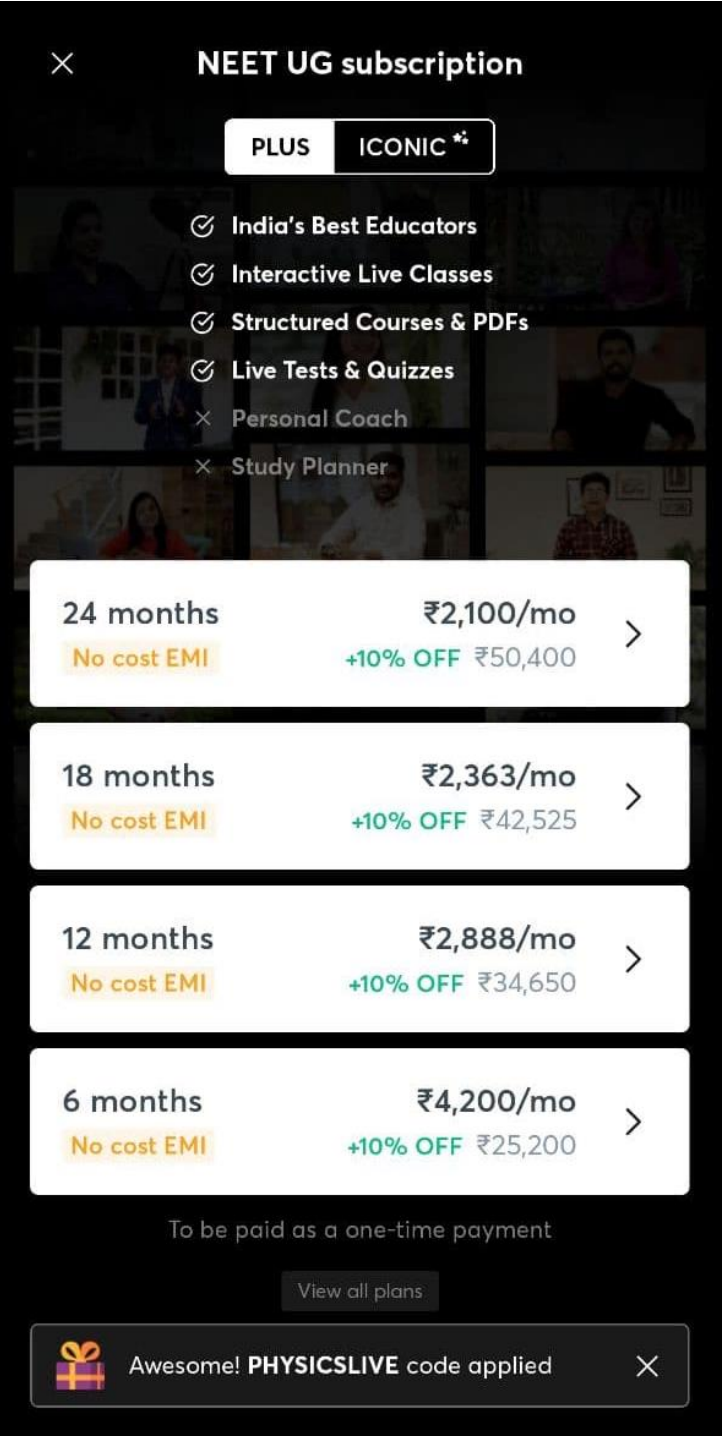
. Interviewed by International media.

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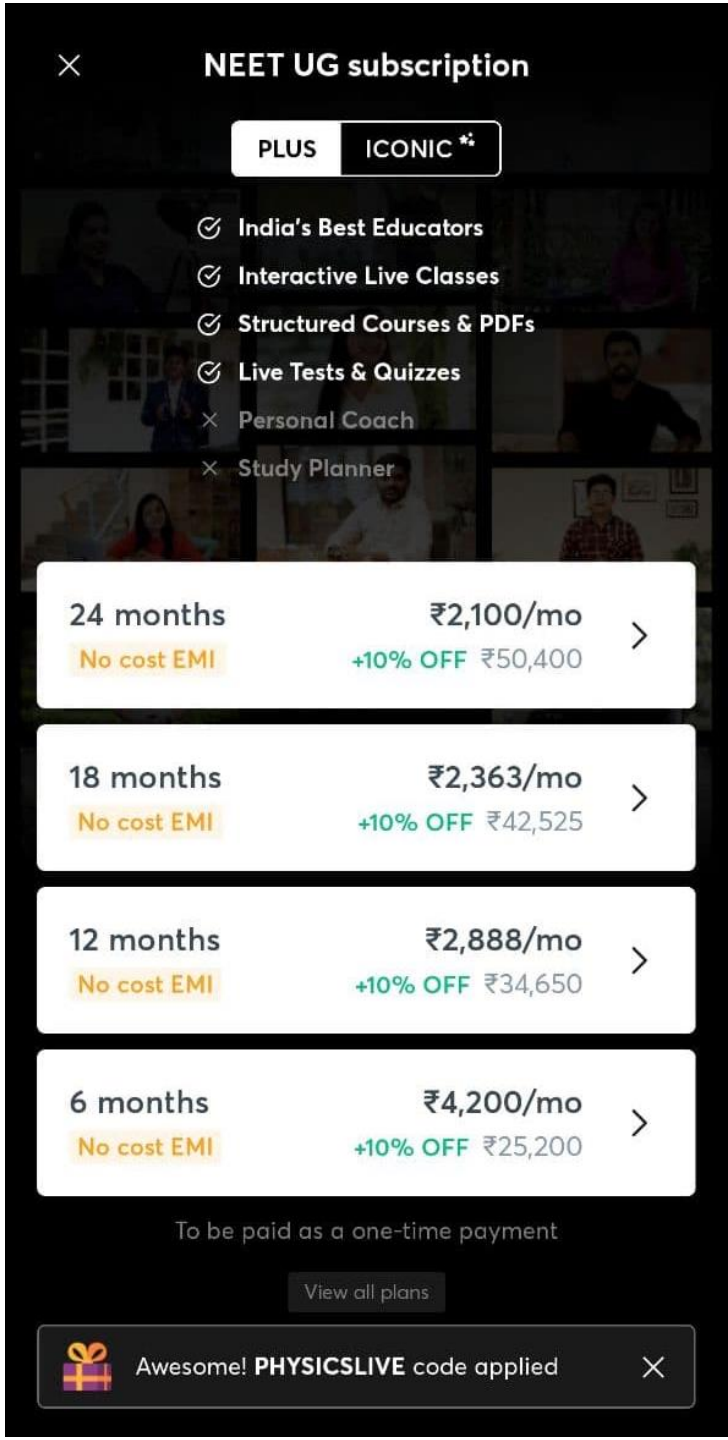

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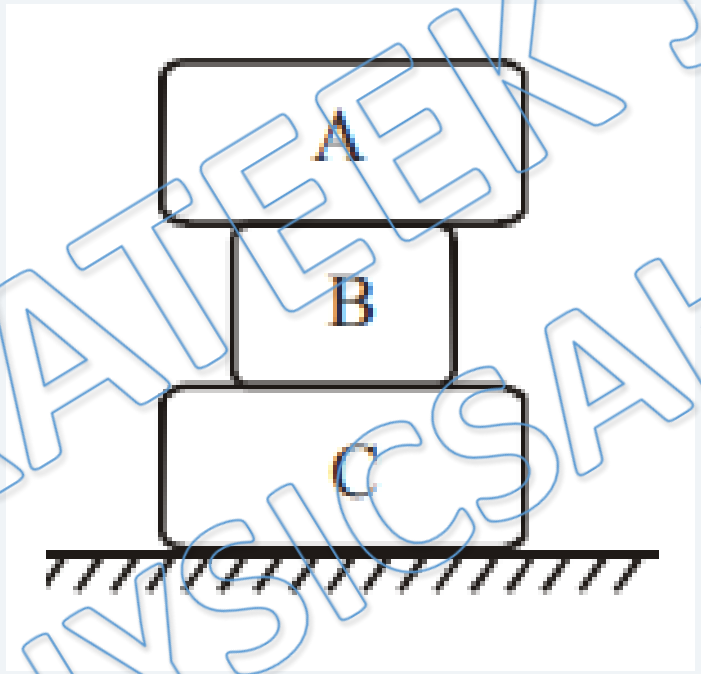
# Physics DPP

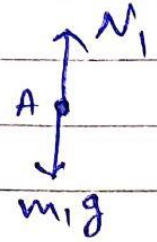
## DPP-1 NLM: Free Body Diagram

## By Physicsaholics Team

Q) Three blocks A, B and C of masses $m_1$, $m_2$ and $m_3$ are placed one over the other as shown in figure. Draw free body diagram of all the three blocks:

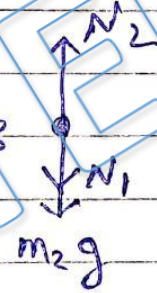


FBD of 'A'



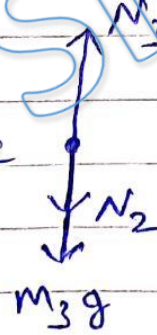

$N_1$ = Normal force ~~on A~~ between A & B

FBD of 'B'



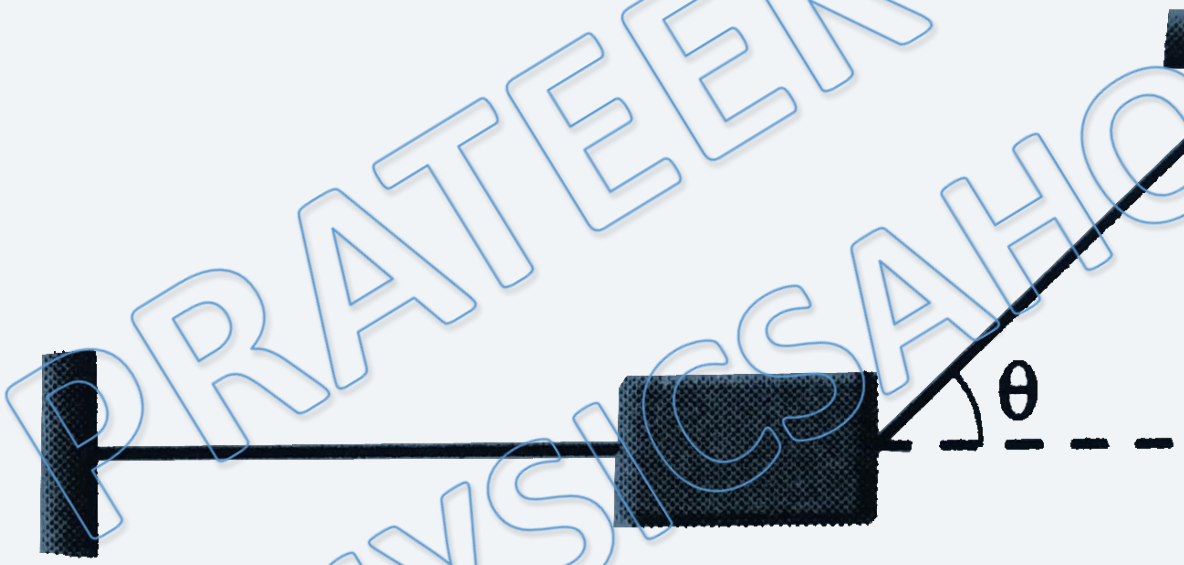

$N_2$ = Normal force between B & C

FBD of 'C'

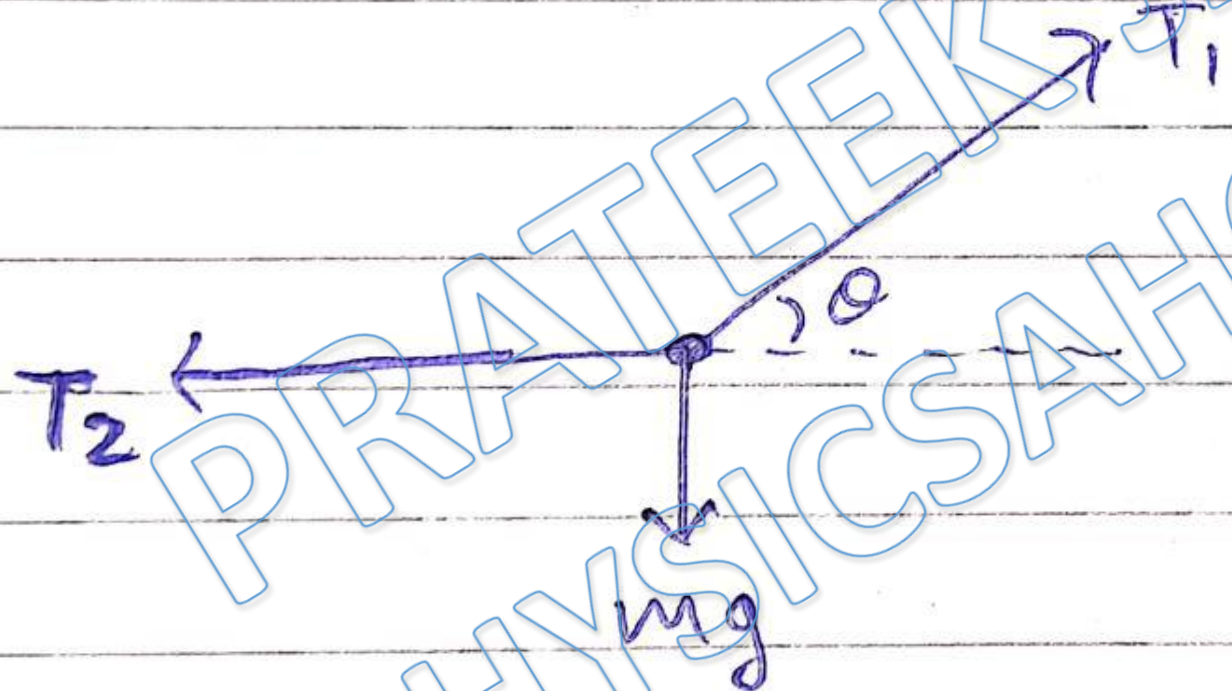



$N_3$ = Normal force between C & ground surface.

Q) A blocked of mass m is attached with two strings as shown in figure. Draw the free body diagram of the block:

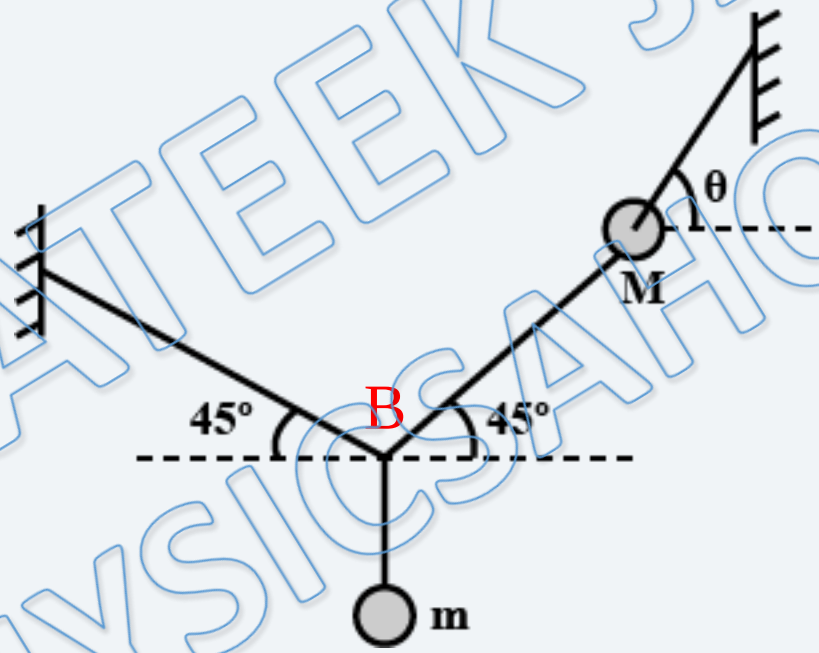


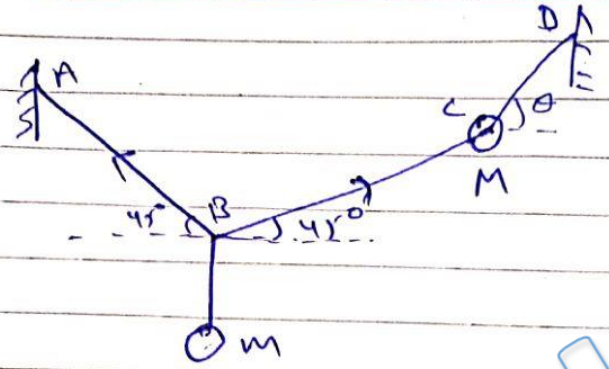
FBD of mass 'm'



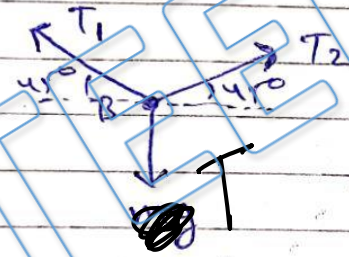

$T_1$ & $T_2$ are tension forces

Q) Two masses m and M are attached with strings as shown. Draw the free body diagram of point B and mass M:





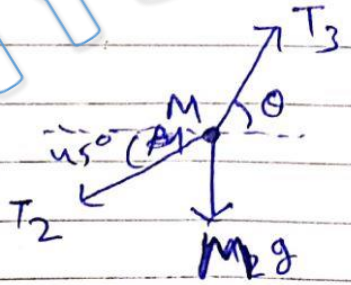

FBD of Point 'B'




$T_1$ = Tension in string AB

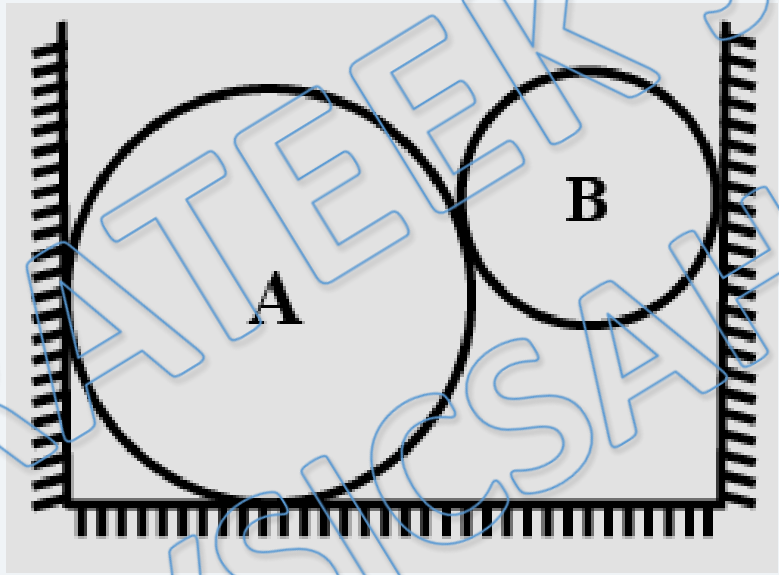
$T_2$ = Tension in string BC

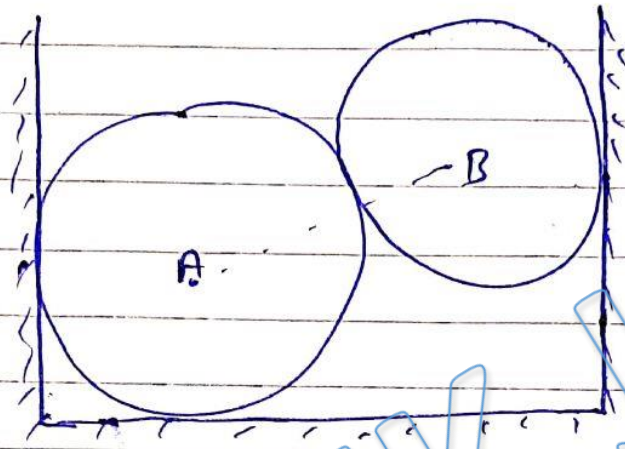
FBD of mass 'M'



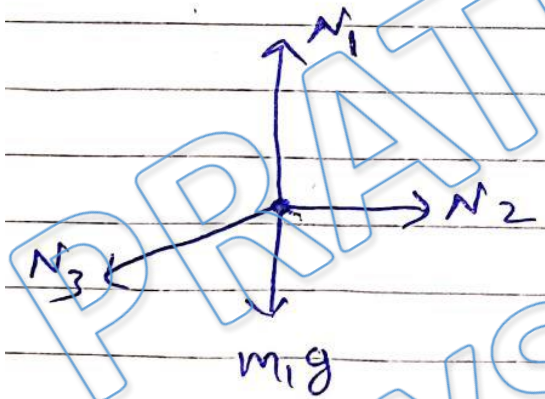

$T_3$ = Tension in string CD

Q) Two spheres A and B of masses $m_1$ and $m_2$ are placed between two vertical walls as shown in figure .Friction is absent everywhere. Draw the free body diagram of both the spheres:

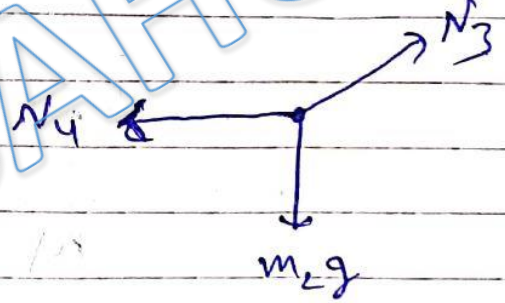





FBD of sphere 'A'




FBD of sphere 'B'



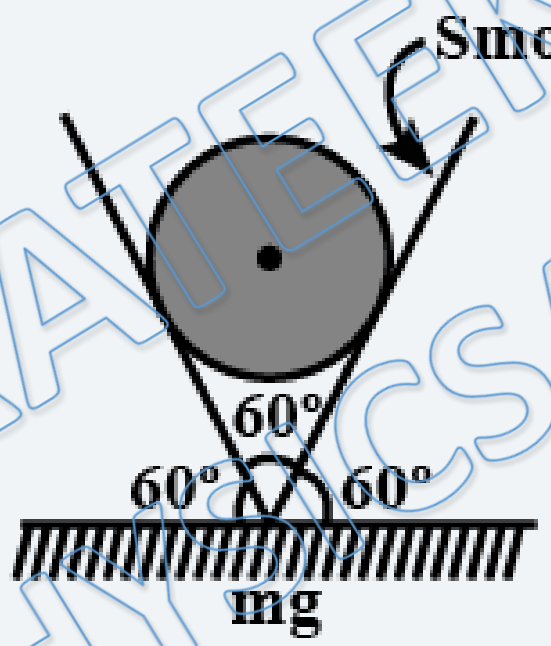

$N_2$ = Normal reaction on sphere A by left wall

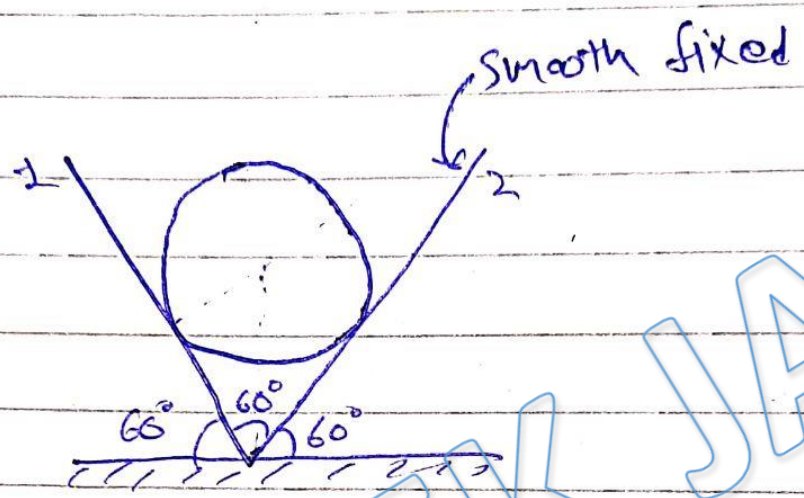
$N_1$ = Normal reaction on sphere 'A' by ground surface.

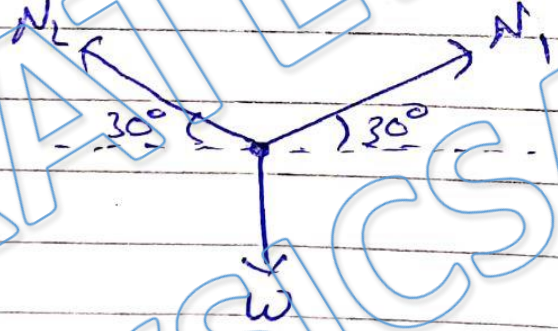
$N_3$ = Normal reaction between sphere A and B

$N_4$ = Normal reaction ~~below~~ on sphere B by right wall.

Q) A cylinder of weight W is resting on a V-groove as shown in figure. Draw its free body diagram:



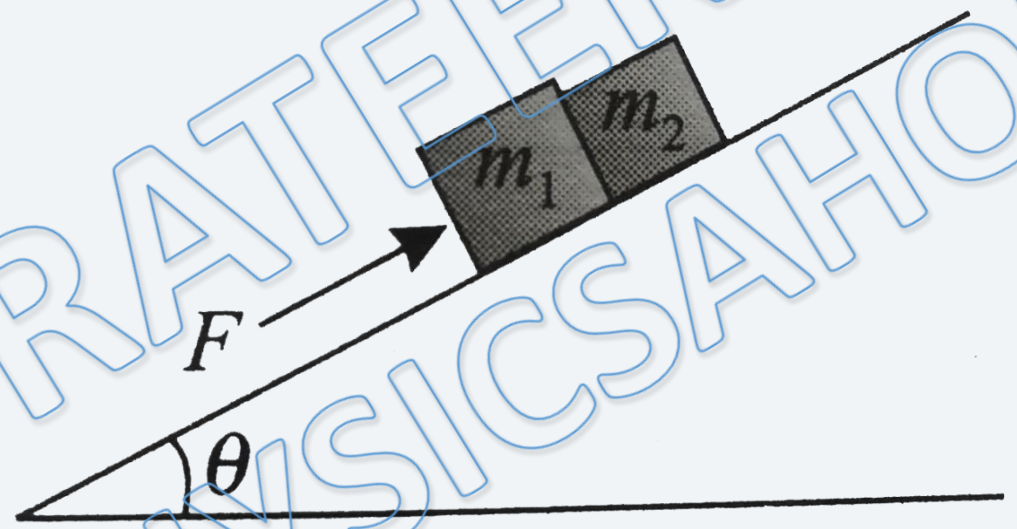


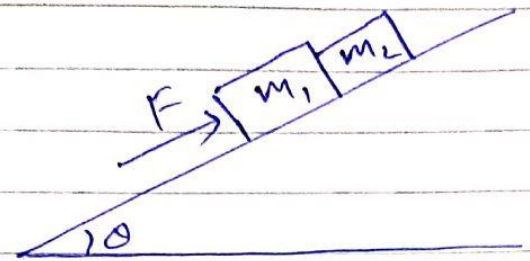




$N_1$ = Normal reaction on weight W by wall -1.

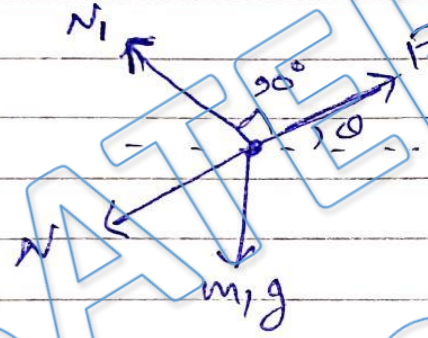
$N_2$ = Normal reaction on weight W by wall -2.

Q) Two blocks are placed at rest on a smooth fixed inclined place. A force F acts on block of mass $m_1$ and is parallel to the inclined plane as shown in figure. Both blocks move up the incline. Then Draw free body diagram blocks of mass $m_1$ and $m_2$:





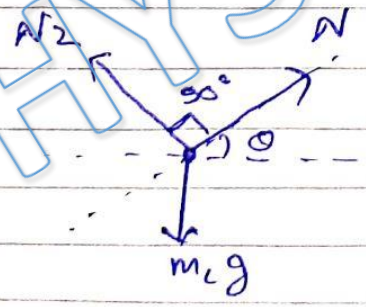

FBD of '$m_1$'




$N_1$ = Normal reaction on $m_1$ by inclined plane.

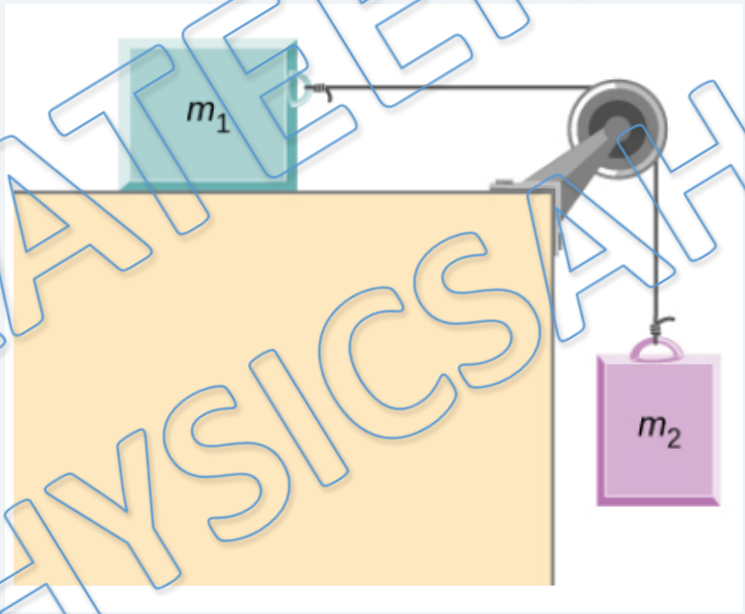
$N$ = Normal reaction between $m_1$ & $m_2$

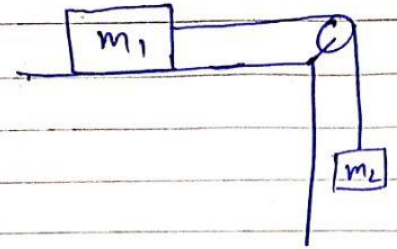
FBD of '$m_2$'



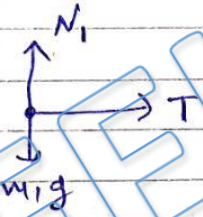

$N_2$ = Normal reaction on $m_2$ by inclined plane.

Q) Two blocks of masses $m_1$ and $m_1$ are connected with light string. All surfaces are smooth. Then Draw free body diagram blocks of mass $m_1$ and $m_2$ and pulley: (pulley is massless)



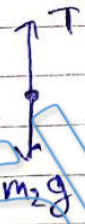



FBD of '$m_1$'

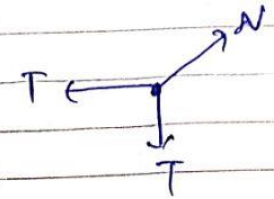



T = Tension in String.
$N_1$ = Normal reaction on $m_1$ by surface.

FBD of '$m_2$'

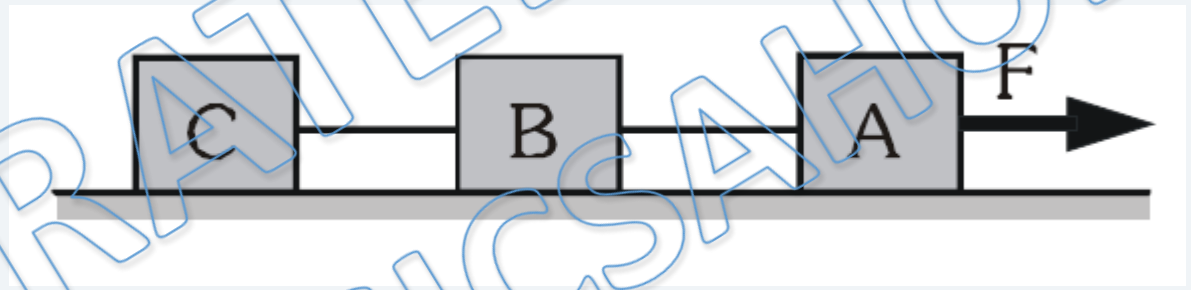


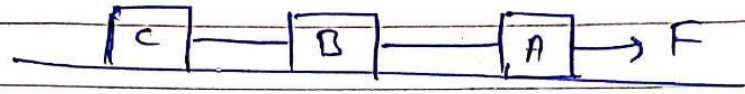

FBD of Pulley



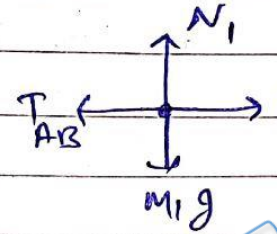

N = Normal reaction on Pulley by surface.

Q) Three blocks A, B and C of masses $m_1$, $m_2$ and $m_3$ are connected by massless strings and placed on a smooth surface. A force F is applied on block A, then draw free body diagram of all the three blocks:





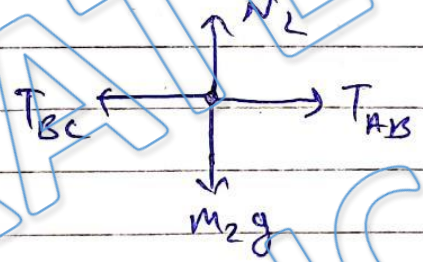

FBD of 'A'




$N_1$ = Normal reaction on A by surface,

$T_{AB}$ = Tension in the string between blocks A & B.

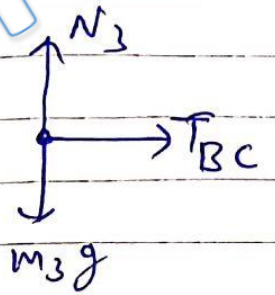
FBD of 'B'




$N_2$ = Normal reaction on B by ground surface,

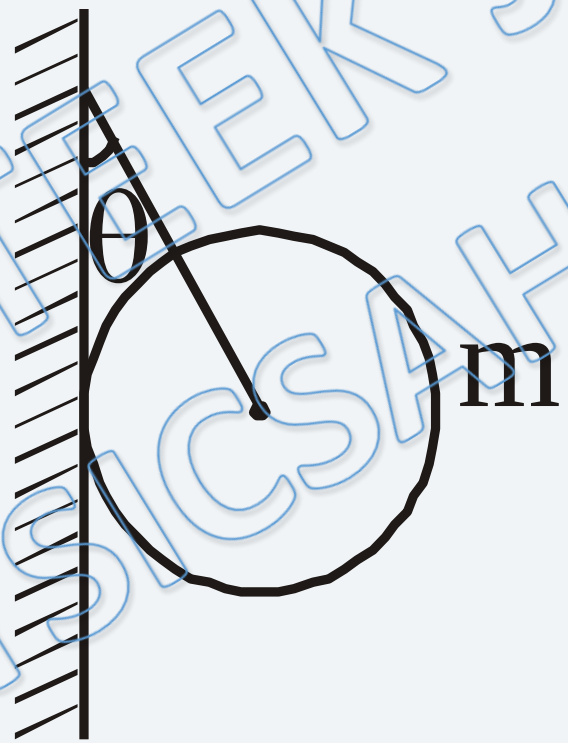
$T_{BC}$ = Tension in string between blocks B & C

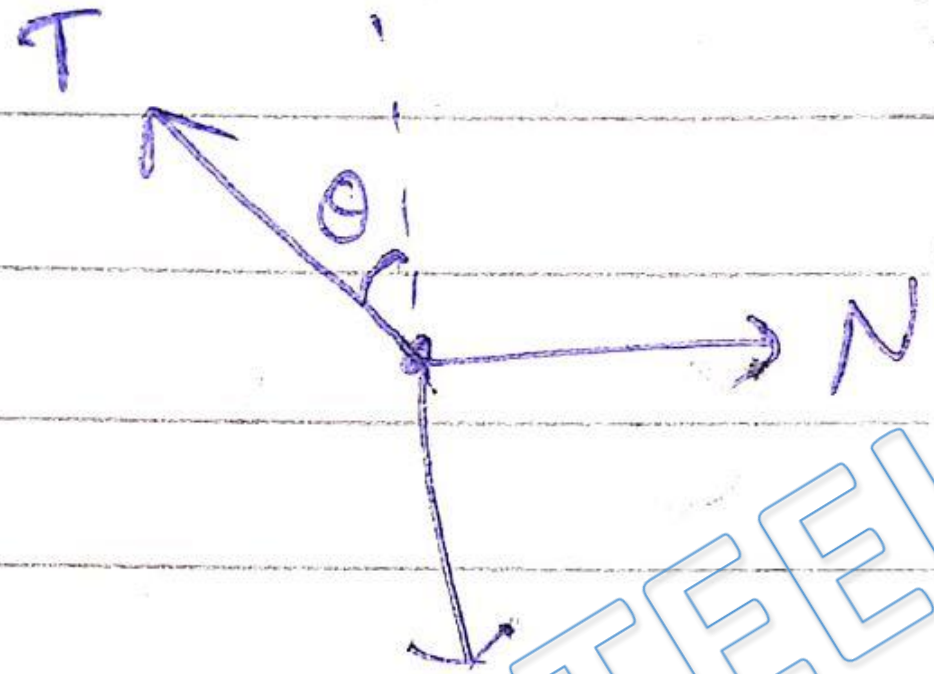
FBD of 'C'




$N_3$ = Normal force on C by ground surface,

Q) If vertical wall is smooth and string is massless, then draw the FBD of mass m:

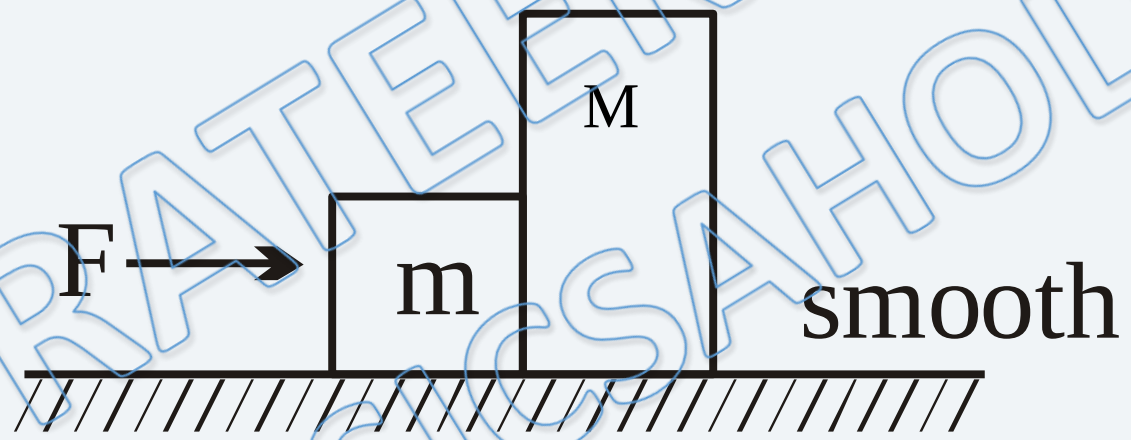




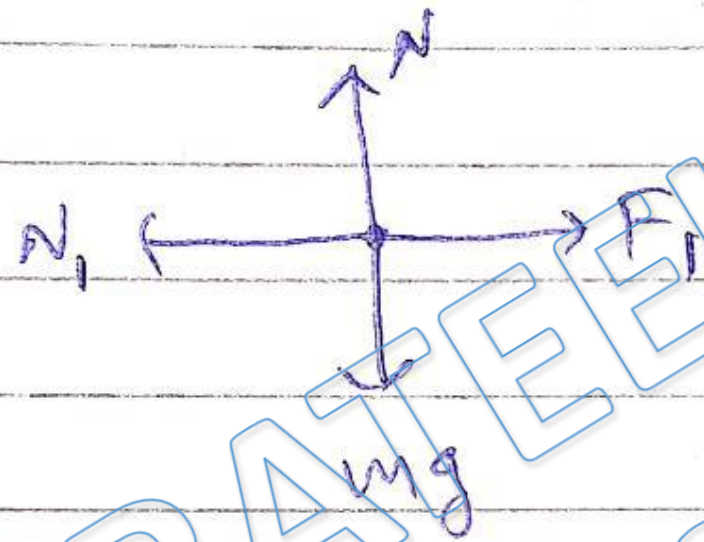

N = Normal reaction on mass (m) by wall.

T = Tension in string.

Q) If the surface is smooth, then draw the FBD of mass m:



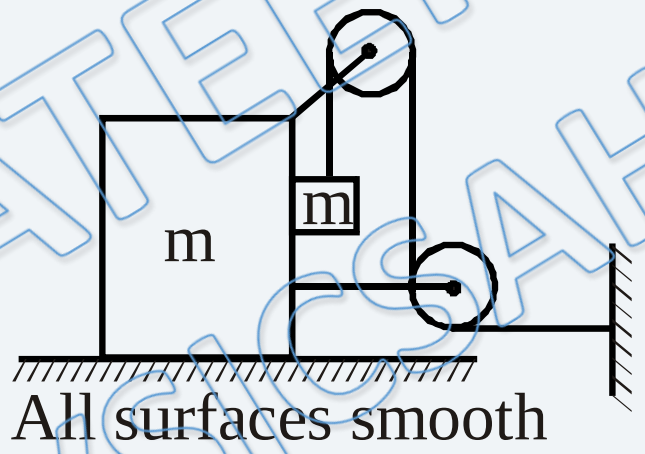
FBD of 'm'

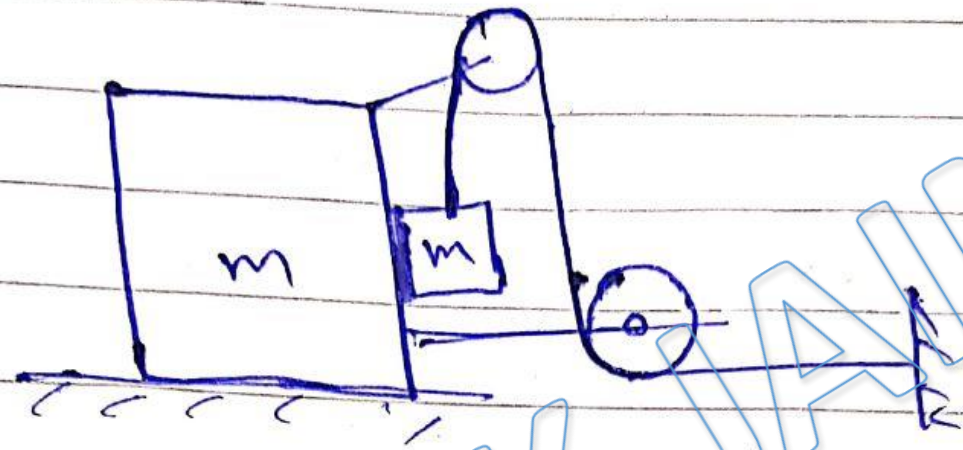



N = Normal reaction on m by ground surface.

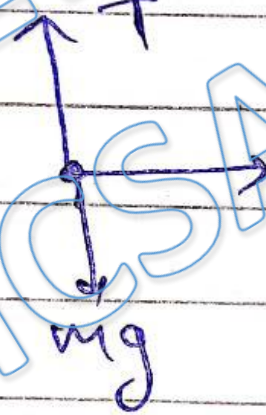
$N_1$ = Normal reaction between m & M

Q) If pulleys and string are massless, then draw the FBD of small block of mass m:





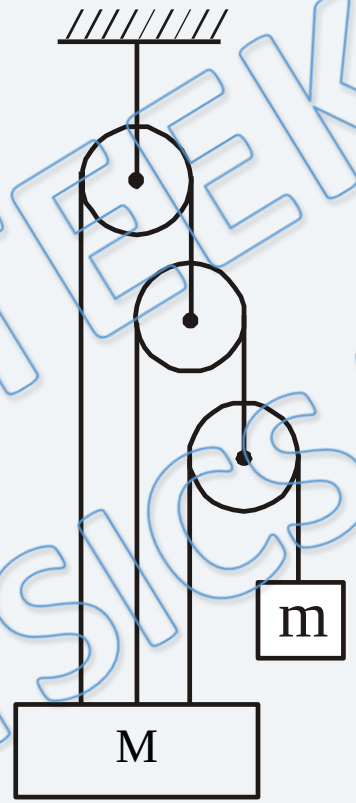

FBD of small block

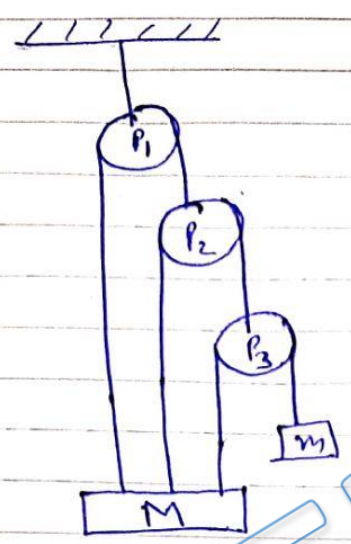



T = Tension in string

N = Normal reaction between both blocks

Q) If pulleys and string are massless, then draw the FBD of small block of mass m and M:

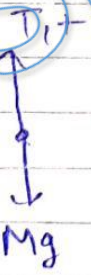





FBD of 'm'


$T_3$ = Tension in the string passing over Pulley $P_3$.

FBD of 'M'




$T_1$ = Tension in the string passing over the pulley $P_1$

and $T_2$ = Tension in the string passing over the pulley $P_2$.

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Chalo Niklo