Step 1 .

Proir Probability.

Target = Apple(yes/no)

Features : Color(Read/Green),

: Size(Small/large),

: Texture(smooth/rough),

:Weight(Heavy/light)

P(Apple = yes) = 5/10 = 0.5

P(Apple = no) = 5/10 = 0.5

Step 2 : Likelihood Probability

Yes Probability

P(Color = Red | Apple=yes) = 5/5 = 1

P(Size=small | Apple=yes) = 3/5 = 0.6

P(Texture = Rough | Apple = yes) = 2/5 = 0.4

P(Weight = light | Apple = yes) = 2/5 = 0.4

No Probability

P(color = red | Apple = no) = 0/5 = 0

P(Size = Small | Apple = no) = 2/5 = 0.4

P(Texture = Rough | Apple = no) = 3/5 = 0.6

P(Weight = light | Apple = no) = 3/5 = 0.6

Step 3: Posterior Probablity

For P(yes) = 0.5 x 1 x 0.6 x 0.4 x 0.4 = 0.048

For P(no) = 0.5 x 0 x 0.4 x 0.6 x 0.6 = 0

Step 4

For P(Apple = yes | Color = Red | Size = Small | Texture = Rough | Weight = light)

= 0.048 / 0.048 + 0

= 1

For P(Apple = No | Color = Green | Size = Large | Texture = Smooth | Weight = Heavy)

= 0 / 0 + 0.048

= 0

Step 5 Probability Answer

New object with the following features : Color = Red

: Size = Small

: Texture = Rough

: Weight = Light

New object = Apple.