Value Based Questions

1. Two friends were going for a short tour and on the way the car suddenly stopped. Both of them managed to push the car of mass 1100 kg at a uniform velocity along a level road. In the meantime a villager came to help them and the same car was now pushed by three persons at an acceleration of 0.2 m/s^2.

After reading the passage carefully answer the following questions:
(i) With what force does each person push the car?
(ii) Which value is promoted here?
(Consider that each person pushes the car with the same efficiency.)

Ans. (i) Mass of the car, m = 1100 kg

Let F be the muscular force applied by each person.

∴ Force required for moving the car at uniform speed = 2 x F = 2F

Total force applied by three persons = 3 F

∴ Force needed to produce acceleration in the car = 3F - 2F = F

Now acceleration produced in the car, a = 0.2 m/s

∴ From the definition,

Force = Mass x Acceleration

F = 1100 kg × 0.2 m/s^2

F = 220 N

(ii) Value of helping attitude towards those persons who are really in trouble is shown here.