

# Software Development Fundamentals Lab – I [15B17CI171]

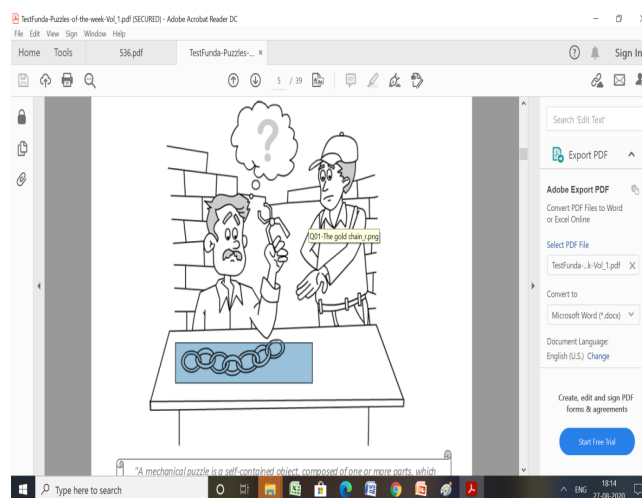
## Assignment Sheet

### Week 1 [6 Sep-11 Sep]

#### Lab A

**Note:** Students are advised to submit their solutions to respective lab faculty. The solution file must be named as “rollno\_first name\_w1A.doc” (here W1A represents week 1 lab A).

**Q1.** A wealthy man needed to pay the mason building his house. He was running low on cash, so he decided to pay the mason with a gold chain with 7 links. The mason's fee was equivalent to one gold link a day. The wealthy man needed to pay the mason each day, as otherwise he would stop working. If he overpaid, the mason might run away with the extra payment. The wealthy man did not want to make too many cuts in the chain as he wanted it back once he had the cash to pay the mason in cash. What is the minimum number of cuts that the wealthy man needs to make the chain?



**Q2.** A hunter has a lion, goat and carrot and he wants to cross the river taking three of these along. However, there is a boat that can fit him plus either the lion, the goat, or the carrot. He is confused because if the lion and the goat are alone on one shore, the lion will eat the goat. If the goat and the carrot are alone on the shore, the goat will eat the carrot. Remove hunter's confusion by suggesting him a way to bring all the three things to the other shore.

**Q3.** When visiting an insane asylum, I asked two inmates to give their ages. They did so, and then, to test their arithmetical powers, I asked them to add the two ages together. One gave me 44 as the answer, and the other gave 1,280. I immediately saw that the first had subtracted one age from the other, while the second person had multiplied them together. What were their ages?

**Q4.** The Maximum distance that can be travelled by a tyre of a car is 20000 miles before wearing off and Car has 4 tyres and 1 spare type. You are allowed to change tyres (using the spare tyre) an unlimited number of times. Build logic to answer, what is the maximum distance the car can travel before you are forced to buy a new tyre?

**Q5.** We have 10 identical bottles of identical pills (each bottle contains hundred pills). Out of 10 bottles 9 have 1 gram of pills but 1 bottle has pills of weight of 1.1 gram. Given a measurement scale, how would you find the heavy bottle? You can use the scale only once.