

WWW.VUTUBE.EDU.PK

CS504 Software Engineering - I

Mid Term Examination - November 2004

Time Allowed: 90 Minutes

Instructions

Please read the following instructions carefully before attempting any question:

1. You have to attempt all Questions.
2. This examination is closed book, closed neighbors; any one found cheating will get no grade.
3. Do not ask any questions about the contents of this examination from anyone.
 - a. If you think that there is something wrong with any of the questions, attempt it to the best of your understanding.
 - b. If you believe that some essential piece of information is missing, make an appropriate assumption and use it to solve the problem.
4. You are allowed to use any tool that helps in drawing Diagrams like Microsoft Word, Paint etc.

Total Marks: 60

Questions: 3

Total

Question No. 1

Marks : 25

A food processor has the following motor control. It has a switch that is either in the On position, or Off position. When the motor is stationary and the switch is turned on, then power is applied to a starting coil, and the motor starts. After the motor starts, the power is applied to the running coil, and the motor continues to run. The motor has a heat sensor. If the motor becomes too hot due to overload, then the power to the motor is cut off, and the motor stops. When the motor has cooled down, and it is stationary, power is again applied first to the starting coil, and then to the running coil, when it is in motion.

- a. Draw a state transition diagram for the system (10 marks)
- b. Draw the message sequence diagram for the above system (10 Marks)
- c. Draw a use case block diagram, to illustrate the above-described sequence of events in detail (i.e. the motor was started, run, it overheated, stopped, cooled, and again started and run) (5 Marks)

Question No. 2**Marks : 10**

Briefly describe "Software Engineering Framework". Do provide examples and diagrams where necessary.

Question No. 3**Marks : 25**

Determine which of the following relationships are inheritance, association or aggregation. Be aware that there may be 3-way or N-way associations so do not assume that any N-way relationship is inheritance. Also draw the object model in each case.

- a. A country has a capital **(5 marks)**
- b. A dining philosopher is using a fork **(5 marks)**
- c. A file is an ordinary file or a directory **(5 marks)**