

ODD 2020
Tutorial Sheet - 1

Software Development Fundamentals – I (15B11CI111)

Course Outcomes (CO)	
CO1	Explain various phases of software development life cycle
CO2	Explain various data types, memory allocation schemes, precedence of arithmetical and logical operations, and need of array, and structures
CO3	Draw the flow chart and write the high level code for different problems
CO4	Apply and implement functions with or without pointers for different problems
CO5	Demonstrate and implement various operations like traverse, insertion, deletion, etc. on files

Note: Students are advised to submit their solutions to their respective tutorial faculties.

Analyse the Requirements and Flow of Events for Q1 & Q2

Q1. [CO1] Lift / Elevator control system in multi-story building

Q2. [CO1] Intelligent traffic control signal system to control the traffic movements at squares/junctions

Q3. [CO3] Find out the count of possible solutions in Magic Square puzzle, if 5×5 square grid is given and numbers are from 1 to 25. Also compute the Sum in each row, column, and corner to corner diagonal

Q4. [CO3] Compute the Sum in each row, column, and corner to corner diagonal in Magic Square puzzle, if 3×3 square grid is given and numbers are from 7 to 15. Also find out all the possible solutions

Q5. [CO3] Can we create a Magic Square with user inputted random numbers? Say the user inputted nine numbers for 3×3 square grid are 1, 5, 6, 9, 12, 13, 17, 18, and 21

Q6. [CO3] You have been given a set of 8 distinct letters as C, E, M, O, P, R, T, and U. If you generate all the words made-up of these 8 characters, and arrange/list them in sorted order (alphabetically ascending order), then what will be the position of the word COMPUTER in the sorted list (first word and last word in this sorted list are CEMOPRTU and UTRPOMECE respectively)

Example for Q6: With three characters, A, M, and Y we can make six words as follows: AMY, AYM, MAY, MYA, YAM, and YMA. In this sorted list, position of the word MAY is 3rd

Q7. [CO3] In Count the Line puzzle, if length of one side of the equilateral triangle at Level 0 is 27 units, then what will be the perimeter of the transformed shape at Level 3?

Q8. [CO3] The Emperor ordered his servants to fill up his treasury. Each of the 3 servants, had to go to the treasury, count how much gold coins there was at that moment, and then triple it and leave. Emperor has to reward the servants in some way, so he let each of them take 1 gold coin out before leaving. After all three servants have left; emperor collected exactly 500 gold coins in the treasury. How much gold coins did he have before the order?

Q9. [CO1] A lift manufacturing company has installed the lift system in your high rise building on 10th January 2019. After analysing its performance for 10 days, the company provided the certificate for its public uses. After two months, you realised that the lift is not stopping at your floor. You made the complaint and lift manufacturing company responded immediately and resolved the problem. Which of the following phases of software development life cycle (SDLC) better suits the presented scenario?

- A.** Testing Phase
- B.** Design Phase
- C.** Implementation Phase
- D.** Maintenance Phase

Q10. [CO1] In which one of the following phases of Waterfall Model of SDLC, risk analysis of the project / software development is done?

- A.** Testing Phase
- B.** Design Phase
- C.** Implementation Phase
- D.** Requirement Analysis Phase