REFNO057705

Roll No. 2291900010

MASTER OF COMPUTER APPLICATION (TWO YEAR) SEMESTER I EXAMINATION 2022-23

CS - 205 : Software Engineering

Time : Three hours **Max. Marks : 70**

(WRITE YOUR ROLL NO. AT THE TOP IMMEDIATELY ON THE RECEIPT OF THIS QUESTION PAPER)

NOTE : ATTEMPT ANY FIVE QUESTIONS. THE FIGURES IN THE RIGHT-HAND MARGIN INDICATE MARKS.

1. (a). Define the term "Software engineering". Explain the major differences between software engineering and other traditional engineering disciplines. Why is primary goal of software development now shifting from producing good quality software to good quality maintainable software? 7

   (b). Write down the major characteristics of a software. Illustrate with a diagram that the software does not wear out. What is software metric? How is it different from software measurement? Discuss software process and product metrics with the help of examples. 7

2. (a). Discuss the objectives of modular software design. What are the effects of module coupling and cohesion? What problems are likely to arise if two modules have high coupling? What problems are likely to arise if a module has low cohesion? 7

   (b). What is software maintenance? Describe various categories of maintenance. Which category consumes maximum effort and why? What is the importance of regression test selection? Discuss with help of examples. 7

3. (a). Explain the spiral model of software development. What are the limitations and merits of such a model? Sketch a neat diagram of spiral model of software life cycle and also compare it with the waterfall model. 7

   (b). What is software testing? Discuss the role of software testing during software life cycle and why is it so difficult? Discuss the limitation of testing. Why do we say that complete testing is impossible? What is the purpose of integration testing? 7

4. (a). Discuss various types of COCOMO mode. Explain the phase wise distribution of effort. Assume that the size of an organic software product has been estimated to be 32,000 lines of code. Determine the effort required to develop the software product and the nominal development time. 7

   (b). List the advantages of using waterfall model instead of adhoc build and fix model. Describe the type of situations where iterative enhancement model might lead to difficulties. What is the role of user participation in the selection of a life cycle model? 7

P.T.O.

5. (a). For a program with number of unique operators $\eta 1 = 52$ and number of unique operands $\eta 2 = 60$, compute the following: (i) Program volume (ii) Effort and time (iii) Program length, and (iv) Program level. 7

(b). What are uses of reliability studies? How can one use software reliability measures to monitor the operational performance of software? Explain the significance of bath tube curve of reliability with the help of a diagram. Compare hardware reliability with software reliability. 7

6. (a). What is a software failure? Explain necessary and sufficient conditions for software failure. More presence of faults means software failure, is it true? If not, explain through an example, a situation in which a failure will definitely occur. 7

(b). What do you mean by Software Requirement Specification (SRS). Can a system ever be completely "decoupled" that is, can the degree of coupling be reduced so much that there is no coupling between modules? What documents should be produced on completion of the design phase? 7

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