

Roll No.

Total No. of Pages : 03

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PGDCA / M.Sc. (IT) (Sem.-2)
SOFTWARE ENGINEERING

Subject Code : PGCA-1912

Paper ID : 77841

Date of Examination: 29-05-2023

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C. have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

I. Answer the following questions briefly:

- a) What is software?
- b) What are formal models?
- c) Which are architectural design elements?
- d) What is difference between verification and validation?
- e) What is software reengineering?
- f) How control structures are used in structure testing?
- g) What is software maintenance?
- h) When do you perform unit testing?
- i) How component based model is used?
- j) What is team software process?

SECTION-B

2. In 2017, a well-known organization 'A' is planning to develop a large product 'B'. Product 'B' would be comparable to a well-known Product 'C' but would be targeted to Operating system 'D'. At this time, no other vendor is planning to develop such product for operating system 'D'. What life cycle model would you use? Briefly justify your answer and also explain the model.
3.
 - a) Draw a use case diagram on Medical Appointment management system for hospital.
 - b) Prepare a software requirement specification for the above mentioned system.
4. Discuss various components and deployment level design elements.
5. **Write a short note on:**
 - a) Personal software process
 - b) Team Software Process

SECTION-C

6. A proposal is made to count the size of 'C' programs by number of semicolons, except those occurring with literal strings. Discuss the strengths and weaknesses to this size measure, when compared with the lines of code count.
7. **An application has the following :**

10 low external inputs, 12 high external inputs, 20 low internal logical files, 15 high external interface files, 12 average external enquiries, and a value of complexity adjustment factor of 1.10. What are the Unadjusted and adjusted function point counts?
8. Consider two components A and B. Two software engineers, Laurel and Hardy, measure the dependences between A and B. Laurel uses these dependences when computing cohesion, and Hardy uses these dependences when computing coupling. Laurel is considering a larger module C that contains both A and B as implementation details. Hardy is considering the implementation of C, and thinking of A and B as modules. Out of Laurel and Hardy, who is performing a sensible and useful computation and why?

What is software testing? Discuss the role of software testing during software life cycle and why is it so difficult?

9. Consider the following simplified description of a university, where professors teach seminars in which students can enroll. A professor has a name, address, phone number, email address, and salary. A student has also a name, etc., but no salary (sorry). A student, however, has an average mark (of the final marks of his or her seminars). A seminar has a name and a number. When a student is enrolled in a seminar, the marks for this enrolment are recorded and the current average as well as the final mark (if there is one) can be obtained from the enrolment. From a student one can obtain a list of seminars, he or she is enrolled in. Professors teach seminars. Each seminar has at least one and at most three teachers. There are two types of seminar: bachelor and master. From a bachelor seminar students cannot withdraw. From a master seminar they can. Draw a class diagram for this university. Add attributes and methods when necessary. You do not have to include getters and setters for attributes. Visibility modifiers (public, private, etc.) are not required. Motivate your decisions.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.