

**UNIVERSITY COLLEGE TATI (UC TATI)****FINAL EXAMINATION QUESTION BOOKLET**

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| COURSE CODE      | : DCT2133                           |
| COURSE           | : SOFTWARE ENGINEERING<br>TECHNIQUE |
| SEMESTER/SESSION | : 1-2022/2023                       |
| DURATION         | : 3 HOURS                           |

**Instructions:**

1. This booklet contains 5 questions. Answer ALL questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise your hands and ask the invigilator.

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO**

**THIS BOOKLET CONTAINS 5 PRINTED PAGES INCLUDING COVER PAGE**

**QUESTION 1**

- a) Define the terms below:
- i. Software Engineering (2 marks)
  - ii. Software Specification (2 marks)
  - iii. Software Design (2 marks)
  - iv. Software Maintenance (2 marks)
- b) Give **FIVE (5)** ethical principles in ACM/IEEE Code of Ethics. (5 marks)
- c) Explain **FOUR (4)** types of patterns in Architectural design. (4 marks)
- d) Identify **THREE (3)** types of Software maintenance. (3 marks)

**QUESTION 2**

- a) Differentiate between functional and non-functional requirements with example of each. (4 marks)
- b) Identify the functional and non-functional requirements for the following scenarios:
- i. ATM machine shall validate PIN of the user during login along with biometric verification. (2 marks)
  - ii. The website pages should load in 3 seconds with the total number of simultaneous users <5 thousand. (2 marks)
  - iii. The system sends a confirmation email when a new user account is created. (2 marks)
  - iv. The system sends an approval request after the user enters personal information. (2 marks)

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- c) Identify the most appropriate requirements elicitation techniques for the following scenarios:
- i. Rajesh a team member is distributing questionnaires to stakeholder for gathering user requirements. (2 marks)
  - ii. Siti a team member is going to client office for collecting a preliminary requirement by watch a real-life example. (2 marks)
  - iii. Lee is conducting a facilitated meeting with the stakeholder to capture the requirements. (2 marks)
  - iv. Intan a team member is sent to client to observe the business case and collect typical user requirements. (2 marks)

**QUESTION 3**

- a) As a software tester, find **FIVE (5)** defects on the page in Figure 1 (10 marks) below.

**New Registratio**

Choose User Id  Enter User ID

Password  Enter Password

Confirm Password

Name

Email  (Requires verification. Will not be published.)

Country

Please enter the verification number exactly as shown in left.

Figure 1

- b) Draw a Use Case diagram for Internet Auction System based on the information below: (10 marks)

## Public user

- Can use the search features of the system.
- Can read the auction's information.

## Members

- Only members can bid the items for sale.
- All members must register with the system.
- After registering, the system will create an account for the member.

**QUESTION 4**

- a) Give **TWO (2)** requirements to achieve the software reliability with the examples of each. (6 marks)
- b) What is software reliability testing? State **FOUR (4)** categories to measure software reliability testing. (5 marks)
- c) Suggest appropriate reliability metrics for the software below and how the software can achieve the reliability:
- i. A system that monitors patients in a hospital intensive care unit. (3 marks)
  - ii. An automated vending machine control system. (3 marks)
  - iii. A system to control braking in a car. (3 marks)

**QUESTION 5**

You have been appointed as project manager for the following projects below.

- Suggest the most appropriate software process model for the software system and justify your answer.

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- Identify the process activities for the selected model by drawing the flowchart of the model.
  - i. A passenger airplane flight simulator software for pilot training. (10 marks)
  - ii. A university course registration website that used reused package. (10 marks)

-----END OF QUESTION-----

