# International Islamic University Chittagong

Department of Computer Science and Engineering

B. Sc. in CSE

Semester Ending (Final) Exam, Autumn 2021

Course Code: **CSE 3637** Course Title: **Software Engineering**

Time: 2 hours 30 minutes Full Marks: 50

(The figures in the right-hand margin indicate full marks)

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## Part A

[Answer the questions from the followings]

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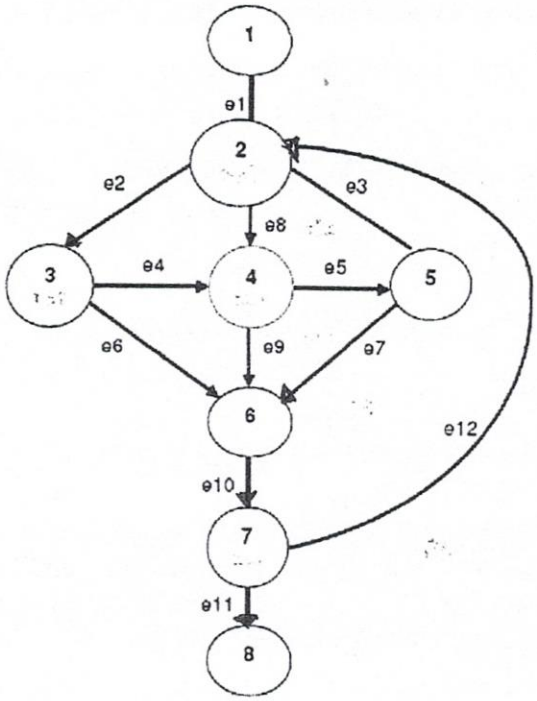
|---|---|---|---|---|
| 1. | a) | What is use-case? Consider a scenario of library management system where a library consists of library admin, users (teachers and students), and stakeholders such as suppliers. Draw a use-case based on this concept. | CO3 | 5 |
| 1 | b) | Why validation of requirements is needed? Which check should be done during requirements validation? | CO3 | 5 |
| | | **or** | | |
| 1. | a) | What does a software design specify? Draw a general model of software design process. | CO3 | 5 |
| 1 | b) | What do you know about viewpoints in requirement engineering? Describe different types of viewpoint. | CO3 | 5 |
| 2. | a) | Suppose you have developed a Bank ATM system for a newly started a Bank. Stakeholders of this ATM includes bank customers, representative of other banks, bank managers, counter staff, database administrators, security managers, marketing department, hardware and software maintenance engineers, banking regulators. Classify these stakeholders into primary, secondary and ternary for this system. Justify your answer. | CO1 | 5 |
| 2 | b) | What is coupling and cohesion? According to the classification, which cohesion is the best? Why? Which are the worst? Give example for your answer. | CO1 | 5 |

## Part B

[Answer the questions from the followings]

| | | | | |
|---|---|---|---|---|
| 3 | a) | What is software maintenance? Explain the software maintenance types of the following scenario:<br>i) Introducing new operating system<br>ii) A new non-functional requirement emerged<br>iii) User discover an error while running the software | CO3 | 5 |
| 3 | b) | What is software documentation? Briefly describe the factors affecting software maintenance. | CO3 | 5 |
| 4. | a) | What is beta testing? Suppose, Mr. X has given input to a program and the program gives wrong output. Which general testing approaches Mr. X should apply in order to overcome the problem? Explain. | CO4 | 5 |
| 4. | b) | Determine the Cyclomatic Complexity of the following graph using graph matrix. | CO4 | 5 |

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|---|---|---|---|---|
| **5.** | **a)** | State some reasons to make your software project Crash and Burn. | **CO2** | **5** |
| **5** | **b)** | Mention some strategies to make a software project better. | **CO2** | **5** |
| | | **or** | | |
| **5.** | **a)** | Describe the necessary steps in the COCOMO model. | **CO2** | **5** |
| **5** | **b)** | The fan in and fan out of module X is 3 and 4 respectively. The complexity of the system is 2000. The number of lines in module X is 200, i.e LOC of module X is LOC(X) =200.Calculate the structural complexity of module X using card and glass's system complexity. Using combined Henry Kafura's approach and Card glass's approach calculate the data complexity of module X. | **CO2** | **5** |