

International Islamic University Chittagong
Department of Computer Science & Engineering
B. Sc. in CSE Semester Final Examination, Spring 2019
Course Code: CSE 3605 Course Title: Systems Analysis and Design
Total marks: 50 Time: 2 hours 30mins

[Answer any *two* questions from **Group-A** and any *three* questions from **Group-B**; Separate answer script must be used for Group-A and Group-B.]

Group-A

- | | | |
|-------|--|---|
| 1. a) | What is cardinality? Why do we need it in Database? | 3 |
| b) | Describe the guidelines for drawing DFDs? | 3 |
| c) | Explain balancing and leveling in a context diagram of DFD. | 3 |
| d) | What is the different between entity relationship diagram and dataflow diagram? | 1 |
| 2. a) | Define supertype and subtype. Explain different rules for supertype and subtypes relationships in an ERD. | 3 |
| b) | Write a comparative view among conceptual, logical, and physical data modelings with examples. | 5 |
| c) | Suppose an organization wishes to record the date when an employee completes each course. The attribute Date-Completed is not a property of the entity EMPLOYEE or a property of COURSE. It is a property of the relationship between EMPLOYEE and COURSE. Now, draw an ERD. | 2 |
| 3. a) | A renowned company WELCAST sells a line of high-quality metal made show pieces. When customers put orders on the company's Web site, the systems check if the items are in stock, issue a current status message to the customer, and produces a shipping order to the warehouse, which pack the order. When the order is shipped, the customer is billed and finally the system also produces various kinds of reports. | 6 |
| • | Draw the context diagram of the given scenario | |
| • | Draw Level-0 of Order System | |
| • | List all external entities. | |
| b) | Describe about unary, binary, and ternary relationships with appropriate figures. | 3 |
| c) | What are the triggering operations in business rules | 1 |

Group-B

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|-------|--|---|
| 4. a) | Clearly specify the objectives of Testing. | 2 |
| b) | What is Cyclomatic complexity? Describe with a diagram. | 3 |
| c) | Is it mandatory to do Stress and Validation testing when a software engineer develop software? | 3 |
| d) | Write the types of errors that are uncovered by black box testing. | 2 |
| 5. a) | Describe the types of system maintenance. | 4 |
| b) | What are the factors that influence system maintainability? | 2 |
| c) | Show a diagram that indicates the controlling maintenance requests | 2 |
| d) | How does maintenance cost of software is determined? | 2 |
| 6. a) | Consider about banking software. Find out the vulnerability of the software. | 2 |
| b) | "Security depends on the software" Justify the comment. | 2 |
| b) | What are the differences between cohesion and coupling? | 2 |
| c) | Describe about interruption, interception,modification and fabrication. | 4 |
| 7. | Write short notes on the following terms: | |
| a) | Alpha and Beta testing | 2 |
| b) | Primitive DFD | 2 |
| c) | Weak entity | 2 |
| d) | Software selection criteria | 2 |
| e) | Foreign key and Candidate key | 2 |