

UNIVERSITY OF BOLTON

OFF CAMPUS DIVISION

WESTERN INTERNATIONAL COLLEGE FZE

BSC(HONS)COMPUTING

TRISEMESTER TWO EXAMINATION 2021/2022

SYSTEM ANALYSIS AND DESIGN

MODULE NO: CPU5006

Date: Tuesday 26th April 2022

Time: 10:00am – 12:00pm

INSTRUCTIONS TO CANDIDATES:

There are FOUR questions on this paper

Answer ALL FOUR questions

All questions carry equal marks

Marks for parts of questions are shown in brackets.

CANDIDATES REQUIRE:

Scenario (attached)

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Q1.

- a. Describe Testing. Explain the importance of Testing phase of SDLC. Describe the different types of Testing.

(7 marks)

- b. Briefly explain with examples the rules to be followed while developing Interview Questions.

(10 marks)

- c. A company has recruited you as a System Analyst. They want you to perform the Economic Feasibility to ensure if they should proceed with the proposed project. Assume you have predicted the Costs and Benefits involved for 4 years provided in the table 1: *Cash Flow Projection* below. Calculate the Net Benefits and Cumulative Net Cash Flow for each year

Table 1: Cash Flow Projection

	Year 0	Year 1	Year 2	Year 3
Total Benefits		50000	55000	60000
Total Costs	100000	10000	12000	15000

Also, identify how ROI and BEP is calculated.

(8 marks)

Total 25 marks

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Q2.

- a. Describe the four core phases of the System Development Life Cycle and their associated phase deliverables.

(8 marks)

- b. What is the role of Use Case Diagram? List the elements of Use Case Diagram. Compare the different types of use-case relationship. Create Use case Diagram for a Student Management System.

(9 marks)

- c. Identify the project characteristics that would lead you to recommend the following software development methodologies.

- i. Scrum
- ii. Throwaway prototype
- iii. Waterfall.
- iv. Iterative

(8 marks)

Total 25 marks

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Q3.

a. Using the information provided in the case study (Appendix A) Osprey Library, draw a context level Data Flow Diagram.

(10 marks)

b. Using the information provided in the context diagram (in question 3a above) draw a **Level 1 Data Flow Diagram**.

(15 marks)

Total 25 marks

Q4.

a. Identify the entities present in the system described in the case study Osprey Library (Appendix A) and indicate the primary key for each entity.

(6 marks)

b. Draw a Logical Data Structure based on the entities identified in question 4a.

(13 marks)

c. Draw the Use Case Diagram for the system described in the case study Osprey Library (Appendix A).

(6 marks)

Total 25 marks

END OF QUESTIONS

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APPENDIX A

Osprey Library

Osprey University is a university located in Ajman. It has a Library Department which catalogues Books, CDs, Magazines and Journals for students and staff. The library is currently using Microsoft Excel sheets to maintain its data. The prospective member fills up a registration form. The Librarian processes the form and issues a library card (hereafter the prospect is a member). The member browses a catalogue and finds a loan item (Books, CDs, Magazines and Journals). The member borrows the loan item by giving his/her library card and the loan items to the Librarian. The Librarian records the borrowings and returns the loan items and library card to the borrower. At some future date, the borrower returns the loan items to the library. The Librarian checks if the return date is exceeded. If the member has returned the loan item late, then a fine is imposed on the member and asked to pay a fine at the rate of 10 AED per day for overdue days. The member may also reserve a loan item. When the items become available, then the requesting member is called on his mobile number and notified.

The library has a Discussion Room. Members can book the room for isolated studying or meetings. The members interested to book the room need to first reserve the room by writing in Discussion Room Register the Date, Time and Duration required. Based on the availability, the Librarian gives the approval for use of the Discussion Room.

The Librarian maintains the catalogue. The Librarian gets a list of latest items from distributors during the month. Librarian requests all Faculty for any requirements of Books for the upcoming semester and assembles a list of books. At month end, the Librarian creates an order for the distributors. When items arrive the Librarian labels them and makes them available in the catalogue. Librarian informs members through email about the latest books arrived. In the recent years, the number of admissions has increased, and the library feels a need to automate the processes for better maintenance of Library.

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PAST EXAMINATION PAPER