



UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN
INFORMATION SCIENCE**

**BSIS 455: INFORMATION /LIBRARY SYSTEMS ANALYSIS, DESIGN AND
EVALUATION**

STREAMS:

TIME:2 HOURS

DAY/DATE: TUESDAY 10/12/2019

8.30 A.M – 10.30 A.M

INSTRUCTIONS:

ANSWER QUESTIONS ONE AND ANY OTHER TWO:

SECTION A:

QUESTION ONE:30 MARKS

- a) Prototyping is useful during the analysis and design phases if users are involved in the evolution of the prototype. There are however some disadvantages to prototyping. Describe three disadvantages or risks (4marks)
- b) Explain current technology drivers that influence information systems development. (4marks)
- c) Agile methods are becoming increasingly important in systems development. Explain at least six DSDM principles (3marks)
- d) An Online State Library System (OSLS) is a library subsystem that provides people of the community with access to borrow e-books and e-videos online at their convenient time. On demand, e-videos and e-books are chargeable. Users of the systems are Community people, Library Staff, Credit Payment Service and PayPal. Community people uses OSLS to login into the system, view items, borrow books and/or videos, and complete checkout; Library staff uses OSLS to view items, login and complete

check out; Credit Payment Service and PayPal use OSLs to complete check out. Represent this situation with a Use Case diagram. (5marks)

- e) Winston University College intends to put in place a new library information system because improved student's population. They have consulted you for expert views and advises. Your expert advice to them is to outsource the Information system. Explain to them reasons for outsourcing and potential risk that might be encountered by the university while outsourcing (5marks)
- f) Specification documents often fail to describe the requirements clearly enough for the various people who need to read them. Describe 4 different types of mistakes made by specification authors (2marks)
- g) Why do we carry out feasibility study? Explain at least four types of feasibility studies and their relevance. (4marks)
- h) Explain the difference between verification and validation. Give an example of a technique that can be used for each? (3marks)

SECTION B:20 MARKS

QUESTION TWO:

- a) Use the following Case Study to answer Question a(i) and a(ii) and a(iii)

Case Study

Noida Public Library is the biggest library in Noida. Currently it has about 300 members. A person who is 18 or above can become a member. There is a membership fee of Rs 400 for a year. There is a form to be filled in which person fills personal details. These forms are kept in store for maintaining members' records and knowing the membership period. A member can issue a maximum of three books. He/she has three cards to issue books. Against each card a member can issue one book from library. Whenever a member wishes to issue a book and there are spare cards, then the book is issued. Otherwise that request is not entertained. Each book is to be returned on the specified due date. If a member fails to return a book on the specified date, a fine of Rs 2 per day after the due return date is charged. If in case a card gets lost then a duplicate card is issued. Accounts are maintained for the membership fees and money collected from the fines. There are two librarians for books return and issue transaction. Approximately 100 members come to library daily to issue and return books.

There are 5000 books available out of which 1000 books are for reference and cannot be issued. Records for the books in the library are maintained. These records contain details about the publisher, author, subject, language, etc. There are suppliers that supply books to the library. Library maintains records of these suppliers.

Many reports are also produced. These reports are for details of the books available in the library, financial details, members' details, and supplier's details.

Currently all functions of the library are done manually. Even the records are maintained

on papers. Now day by day members are increasing. Maintaining manual records is becoming difficult task. There are other problems also that the library staff is facing. Like in case of issue of duplicate cards to a member when member or library staff loses the card. It is very difficult to check the genuinity of the problem.

Sometimes the library staff needs to know about the status of a book as to whether it is issued or not. So to perform this kind of search is very difficult in a manual system.

Also management requires reports for books issued, books in the library, members, and accounts. Manually producing the reports is a cumbersome job when there are hundreds and thousands of records.

Management plans to expand the library, in terms of books, number of members and finally the revenue generated. It is observed that every month there are at least 50-100 requests for membership. For the last two months the library has not entertained requests for the new membership as it was difficult to manage the existing 250 members manually. With the expansion plans, the management of the library aims to increase its members at the rate of 75 per month. It also plans to increase the membership fees from 400 to 1000 for yearly and 500 for half year, in order to provide its members better services, which includes increase in number of books from 3 to 4.

Due to the problems faced by the library staff and its expansion plans, the management is planning to have a system that would first eradicate the needs of cards; a system to automate the functions of record keeping and report generation; and which could help in executing the different searches in a faster manner. The system to handle the financial details.

- i) Write down ten questions that a system analyst could ask the user of Noida Public Library System. [5 marks]
 - ii) Suggest four difficulties a system analyst might face when trying to collect information about existing system. [4 marks]
 - iii) Discuss four pieces of requirements that may be needed for a new Noida Public Library System. (4marks)
 - (iv) Draw a context diagram for Noida Public Library System. [4 marks]
- b) During the design and development of a computerized information processing system, various types of documentation are produced. Explain at least two types and four functions performed by some of these documentations (3marks)

QUESTION THREE: 20 MARKS

- a) Discuss three mechanisms for acquiring an information system, giving an advantage and disadvantage of each mechanism (6marks)
- b) List five advantages of using a database management system to manage data resources in an organization (5marks)

- c) Discuss Joint Application Design (JAD) in Information Gathering and Conditions That Support the Use of JAD (5marks)
- d) Define system methodology? Explain the b-Model life cycle in detail. Also illustrate its strengths and drawbacks (4marks)

QUESTION FOUR: 20 MARKS

- a) What is baseline project plan? Explain its components and importance in relation to software project management (4marks)
- b) Different stakeholders have different perspectives or views of an information system. Describe:
 - i. system owners and users perspective [4 marks]
 - ii. System designers and builders perspective [4 marks]
- c) Assuming you are senior systems analysts working in an IT department of a large organization that currently uses the traditional SDLC as the standard for developing new systems. You have been asked by your manager to examine a number of structured systems methodologies with a view to recommending the most appropriate one to be adopted by the company. Explain five features of the structured approach to systems analysis and design (5marks)
- d) Explain the purpose of a feasibility report, and when in the system development life cycle it Should be produced (3marks)

QUESTION FIVE: 20 MARKS

- a) Draw a context diagram for an Online Library System. Show Online Library System as a Single process. List at least five related entities and the data flows in and out of the system. List two benefits of a context diagram. (5marks)
 - b) List and briefly describe the deliverables from coding, testing, and installation(4 marks)
 - c) What is information system evaluation? Discuss the Information System Utility Approach (5marks)
 - d) Discuss the relevant SDLC stages in detail (6 marks)
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