



BCA/SAD-403

2025

(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper : SAD-403

(System Analysis and Design)

Full Marks : 70

Pass Marks : 45%

Time : 3 hours

(PART : B—DESCRIPTIVE)

(Marks : 45)

*The figures in the margin indicate full marks
for the questions*

1. (a) Explain in detail any two models used in system development life cycle (SDLC).

3+3=6

- (b) Explain the role of a system analyst as an investigator and a motivator.

2

- (c) What do you mean by logical DFD?

1

Or

- (a) Create a data dictionary for the registration and login process of a library management system.

4

- (b) What are the three advantages do decision trees have over decision tables? 3
- (c) What is prototyping? Explain in brief. 2
2. (a) List some examples of entities and their attributes. 3
- (b) Define the term 'normalization'. What is removed when a relation is converted from 2NF to 3NF? 1+2=3
- (c) Explain the following in brief : 1×3=3
- (i) Present value analysis
 - (ii) Break-even analysis
 - (iii) Cash-flow analysis

Or

- (a) What are the objectives of database management system? 3
- (b) What is the difference between a primary key and a foreign key? 2
- (c) Explain any four major cost elements which are associated with system development. 4

3. (a) What is modularization? What do you mean by top-down design? What are its advantages? 1+2+3=6

(b) Explain Warnier-Orr diagram. List out its disadvantages. 1+2=3

Or

(a) Explain the following : 2×2=4

(i) Completeness

(ii) Appropriateness

(b) What are the principles of good forms design? 2

(c) Explain the two important approaches to system reliability. 3

4. (a) What is the difference between static and dynamic modelling? Explain each with the help of a diagram example. 2+4=6

(b) Explain OO Development life cycle in detail. 3

Or

(a) Give any two reasons why computer's insecurity has increased over the years. 2

- (b) What is threat and risk analysis? Give examples for each. 2+3=5
- (c) What is disaster recovery plan? Explain. 2
5. (a) List out the roles of MIS in an organization. 4
- (b) What are the three levels of management activities carried out in operating an organization? Explain with the help of a diagram. 3+2=5
- Or
- (a) List out the activities involved in systems approach to MIS. 4
- (b) What is financial accounting system (FAS)? 2
- (c) What are the most common applications of computers in marketing? 3

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(4th Semester)

BACHELOR OF COMPUTER APPLICATIONS

Paper : SAD-403

(System Analysis and Design)

(PART : A—OBJECTIVE)

(Marks : 25)

The figures in the margin indicate full marks for the questions

1. Put a Tick (✓) mark against the correct answer in the brackets provided : 1×10=10

(a) System study involves

- (i) study of existing system ()
- (ii) documenting the existing system ()
- (iii) identifying current deficiencies and establishing new goals ()
- (iv) All of the above ()

(b) In _____, one module of the new information system is activated at a time.

- (i) SDLC ()
- (ii) case tool ()
- (iii) phased conversion ()
- (iv) None of the above ()

(c) The approach used in top-down analysis and design is

- (i) to identify the top-level functions by combining many smaller components into a single entity ()
- (ii) to prepare flowcharts after programming has been completed ()
- (iii) to identify a top-level function and then create a hierarchy of lower-level modules and components ()
- (iv) All of the above ()

(d) Documentation is prepared

- (i) at every stage ()
- (ii) at system design ()
- (iii) at system development ()
- (iv) None of the above ()

(e) During the maintenance phase

- (i) system requirements are established ()
- (ii) system analysis is carried out ()
- (iii) programs are tested ()
- (iv) None of the above ()

(f) Decision tree uses

- (i) pictorial depiction of alternate conditions ()
- (ii) nodes and branches ()
- (iii) consequences of various depicted alternates ()
- (iv) All of the above ()

(g) An appraisal of a system's performance after it has been installed is called system

- (i) planning ()
- (ii) review ()
- (iii) maintenance ()
- (iv) batch processing ()

(h) Elapsed time, between initiating a query and receiving a response is called

- (i) response time ()
- (ii) waiting time ()
- (iii) processing time ()
- (iv) turnaround time ()

(i) Top management is more interested in

- (i) day-to-day operations ()
- (ii) strategic decisions ()
- (iii) tactical decisions ()
- (iv) Both (ii) and (iii) ()

(j) A file containing multiple indices to the data is called a/an

- (i) indexed file ()
- (ii) sequential file ()
- (iii) indexed-sequential file ()
- (iv) inverted file

2. Indicate whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark :

1×5=5

- (a) The waterfall model is a linear development methodology where each phase must be completed before moving on to the next.

(T / F)

- (b) The UML is used in information engineering.

(T / F)

- (c) The purpose of a context diagram is to analyze how the system interacts with the world around it.

(T / F)

- (d) Many analysts use parts of structured analysis and information engineering in a complementary way to model an information system.

(T / F)

- (e) An MIS is a must for all managers of an organization.

(T / F)

3. Answer the following questions in short :

2×5=10

- (a) What are the activities involved in first stage of SDLC?

- (b) What is the advantage of using structured English to communicate with people in the organization?

(c) Name the three main types of database organization.

(d) What is the difference between security and privacy?

(e) What do you mean by demand reports and exception reports?
