

**INFORMATION SYSTEM ANALYSIS AND DESIGN
(MCAP 1205)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.*

Candidates are required to give answer in their own words as far as practicable.

**Group – A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) _____ level supply information to strategic tier for the use of top management.
(a) Operational (b) Environmental
(c) Competitive (d) Tactical
 - (ii) In _____ system the interaction between various subsystems cannot be defined with certainty.
(a) open (b) closed
(c) deterministic (d) probabilistic
 - (iii) After the design phase the document prepared is known as_____
(a) system specification (b) performance specification
(c) design specification (d) none of these
 - (iv) _____ is a tabular method for describing the logic of the decisions to be taken.
(a) Decision tables (b) Decision tree
(c) Decision method (d) Decision data
 - (v) The data Flow Diagram is the basic component of _____ system.
(a) conceptual (b) logical (c) physical (d) none of these
 - (vi) PERT means
(a) Project Estimation and Review Technique
(b) People Evaluation and Review Technique
(c) Program Evaluation and Review Technique
(d) Product Evaluation and Review Technique
 - (vii) For a weak entity set to be meaningful, it must be associated with another entity set, called the
(a) Identifying set (b) Owner set (c) Neighbour set (d) Strong entity set.

- (viii) Which of the following term describes testing?
(a) Finding broken code (b) Evaluating deliverable to find errors
(c) A stage of all projects (d) None of the mentioned.
- (ix) Cost-Benefit analysis
(a) Compares the cost with the benefits of introducing a computer based system
(b) Estimates the hardware and software costs
(c) Evaluates the tangible and non-tangible factors
(d) All of these.
- (x) Data cannot flow between two data stores because
(a) It is not allowed in DFD
(b) A data store is a passive repository of data
(c) Data can get corrupted
(d) They will get merged.

Group- B

2. (a) Explain the different type of information with example.
[[CO1](Understand/LOCQ)]
(b) Explain the various categories of information relevant to decision making in business.
[[CO1](Understand/LOCQ)]
6 + 6 = 12
3. (a) Explain system development life cycle. How does it relate to system analysis?
[[CO2](Analyze/IOCQ)]
(b) Why documentation is important to the information system life cycle? Explain.
[[CO1](Remember/LOCQ)]
6 + 6 = 12

Group - C

4. (a) Consider the development of an Employee Management System for an organization. The system is aimed at automating the complete employee details, including maintenance of employee attendance records, leave details, and printing monthly pay slips. This system is also expected to sum up each employee's work hours, time off, shift pays that help to generate the pay slip of employees. Draw the 0 level, 1st Level and 2nd Level DFD for developing this system.
[[CO2](Remember/LOCQ)]
(b) Explain the difference between physical and logical DFD with example.
[[CO2](Analyze/LOCQ)]
(3 + 3 + 3) + 3 = 12
5. (a) Suppose you want to open a Cheeseburger Shop in your city. The selling price of each burger is \$5 and it's variable cost is \$3. If the room rent is \$1000/month. Then, how many Cheeseburger you want to sell to reach breakeven in order to

achieve a target profit of \$100 if the room rent increases 20%. If the selling price increases 10%, then what would be the new breakeven?

[(CO3)(Apply/IOCQ)]

- (b) Briefly describe the functional and non-functional requirements of a Hotel Management systems.

[(CO2)(Remember/LOCQ)]

8 + 4 = 12

Group - D

6. (a) If the customer buys \$500 or more worth of merchandise, delivery is free. If the customer buys between \$100 and \$500 worth of merchandise, then the delivery charge is \$10, unless s/he is a valued customer. In this case, the delivery charge is \$5 unless if the customer pays by cash in which case the delivery is free. If the customer buys under \$100 worth of goods, the delivery charge is \$10, unless the customer pays cash, in which case the delivery charge is \$5.

(i) Design the complete decision table for this process.

(ii) Reduce your decision table where necessary and design the simplified version.

(iii) Draw this table as an Extended Entry table. [(CO3)(Remember/IOCQ)]

- (b) A university maintains data about following entities with attributes: (i) Course: Number, Title, Credits, syllabus and prerequisites (ii) Course offered: Course number, year, semester, instructor, timings and classroom. (iii) Student: Student-id, name and degree program. (iv) Instructor: Identification number, name, department and title. The enrolment of student in courses and grades awarded to students in each course must be appropriately recorded. Construct an E-R diagram for the university using standard notation.

[(CO3)(Remember/IOCQ)]

(3 × 2) + 6 = 12

7. (a) Evaluate the requirement of normalization in database management System.

[(CO4)(Evaluate/HOCQ)]

- (b) Discuss with example the concept of Generalization and Specialization in ER diagram.

[(CO3)(Understand/LOCQ)]

8 + 4 = 12

Group - E

8. (a) Explain gantt chart? What are the advantages and disadvantages of using a gantt chart?

[(CO4)(Remember/LOCQ)]

- (b) Describe the information and security threats impacting the security and privacy of a computer system.

[(CO6)(Understand/LOCQ)]

6 + 6 = 12

9. Write short notes on the following.

(3 × 4) = 12

(i) System audit

(ii) Virus

(iii) Security threats.

[(CO4)(Remember/LOCQ)]

Cognition Level	LOCQ	IOCQ	HOCQ
Percentage distribution	64.58	27.08	8.34

Course Outcome (CO):

After the completion of the course students will be able to

CO1. Understand the idea of information system in lieu of the modern abstraction of data.

CO2. Analyze various phases of system development life cycle.

CO3. Gather data to analyze and specify the requirements of a system.

CO4. Design system components and environments.

CO5. Analyze the feasibility of a project.

CO6. Deliver various types of system documentation.

*LOCQ: Lower Order Cognitive Question; IOCQ: Intermediate Order Cognitive Question;
HOCQ: Higher Order Cognitive Question