A8-R5.1 : SYSTEMS ANALYSIS, DESIGN AND TESTING

DURATION : 03 Hours   **MAXIMUM MARKS : 100**

OMR Sheet No. : ☐☐☐☐☐

Roll No. : ☐☐☐☐☐☐   **Answer Sheet No. :** ☐☐☐☐☐☐

Name of Candidate : _____ ; **Signature of Candidate :** _____

INSTRUCTIONS FOR CANDIDATES :

- Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.

- Question Paper is in English language. Candidate has to answer in English language only.

- There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.

- **PART ONE** is Objective type and carries **40** Marks. **PART TWO** is Subjective type and carries **60** Marks.

- **PART ONE** is to be answered in the **OMR ANSWER SHEET** only, supplied with the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book for **PART TWO**.

- Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the Answer Sheet for **PART ONE** is returned. However, Candidates who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the answer sheet for **PART ONE** to the Invigilator.

- **Candidate cannot leave the examination hall/room without signing on the attendance sheet and handing over his/her Answer Sheet to the invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.**

- After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question Booklet is complete in all respects.

DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

PART-ONE

(Answer all the Questions.)

1. **Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the "OMR" answer sheet supplied with the question paper, following instructions therein.** (1x10)

1.1 The following team establishes direction and priorities for aligning information services for the entire business with the corporate mission, vision and goals.

(A) Information technology architecture

(B) Information strategy planning

(C) Software testing

(D) Software Maintenance

1.2 Expert Systems are used for

(A) Capturing knowledge of a Problem Solver

(B) Authentication

(C) Online Payment Systems

(D) Subscription to a Magazine

1.3 The following is a technique that divides the set of all business requirements for a system into subsets , each of which will be implemented as version of the system :

(A) Bottom up design

(B) Recursion

(C) Two way merging

(D) Time boxing

1.4 The following is the first component of DFD :

(A) process

(B) square

(C) flow

(D) entity

1.5 The following is a disadvantage of a Bar Chart :

(A) Uses only discrete data

(B) Good communication tool

(C) Summarizes the large set of data in simple visual form

(D) Clarifies the trend of data better than the table

1.6 The following is the evaluation of alternative solutions and the specification of a detailed computer-based solution :

(A) Systems analysis

(B) Systems design

(C) System testing

(D) Systems integration

1.7 E-Commerce means :

(A) Commerce which is based on the use of Internet

(B) Commerce of electronic goods

(C) Commerce which is based on transactions using Computers connected by telecommunication network

(D) Commerce which depends on electronics

1.8 An Entity set that does not have sufficient attributes to form a Primary key is known as :

(A) Weak entity set

(B) Strong entity set

(C) Variant set

(D) Variable set

1.9 In multiple inheritance, the number of classes involved are at least :

(A) 2

(B) 3

(C) 4

(D) 5

1.10 In a decision table, the following describes the factors that will affect the decision or policy :

(A) Action stubs

(B) Rules

(C) Headers

(D) Condition stubs

2. **Each statement below is either TRUE or FALSE. Choose the most appropriate one and enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.** (1x10)

2.1 A policy is a set of rules that govern some process in the business

2.2 The Systems Analyst documents business process, products & services.

2.3 The objective of study of economic feasibility is to answer the following question : Is the solution technically practical?

2.4 A circle in a DFD represents an external entity.

2.5 A decision tree is a graph that always uses a branching method in order to demonstrate all the possible outcomes of any decision.

2.6 EDI is the computer-to-computer exchange of business documents in a standard electronic format between business partners.

2.7 Audit files are special records of updates to other files, especially master and transaction files.

2.8 Cardinality defines only minimum number of occurrences of one entity for a single occurrence of the related entity.

2.9 A Data Dictionary is a collection of names , definitions, and attributes about data elements that are being used or captured in a database or an information system or any other similar project.

2.10 Synchronization is the balancing of data flow diagrams at different levels of detail to preserve consistency and completeness of the models.

3. Match words and phrases in column X with the closest related meaning / word(s) / phrase(s) in column Y. Enter your selection in the "OMR" answer sheet supplied with the question paper, following instructions therein.   (1x10)

	X		Y
3.1	Facilitates study of business problems and needs to determine how the business system and information technology can best solve the problem and accomplish improvements for the business	A.	System development life cycle
3.2	They capture and process data about business transactions	B.	UML
3.3	It is a logical process by which developers build information systems and computer applications	C.	Software Maintenance
3.4	A technique that focuses on facilitated group meetings with both technicians and users	D.	Integration testing
3.5	A standardized language consisting of an integrated set of diagrams, is developed to help system and software developers for specifying, visualizing, constructing, and documenting the artifacts of software systems, as well as for business modelling and other non-software systems	E.	Bug fixing
3.6	A systematic technique for constructing the software architecture while at the same time conducting tests to uncover errors associated with interfacing	F.	Systems Analyst
3.7	It is the process of modifying and updating a software system after it has been delivered to the Customer	G.	Re-engineering
3.8	The process of finding and fixing errors and problems in the software	H.	Joint Application Development
3.9	In this approach, there is no way to go back	I.	Reverse Engineering
3.10	The process of improving the design and architecture of the software to make it more maintainable and scalable	J.	Transaction processing systems
		K.	Waterfall Model
		L.	Software Quality
		M.	Formal Technical Review

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Choose the most appropriate option, enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein. (1x10)

A	Information Engineering	B	Data Modelling	C	DFD	D	Data stores
E	Object Oriented Design	F	Feasibility study	G	Basis path testing	H	Test case design
I	Spiral model	J	Meeting	K	Quality	L	Data object
M	Waterfall model						

4.1 _____ is a technique for organizing and documenting the data that must be stored in a database.

4.2 _____ is a design strategy that follows up object-oriented analysis to refine object requirement definitions and to define new design specific objects.

4.3 _____ is a white box testing technique.

4.4 _____ depicts the flow of data through system's processes.

4.5 _____ is a technique that focuses on data and strategic planning.

4.6 The primary objective of _____ is to derive a set of tests that have the highest likelihood of uncovering errors in software.

4.7 _____ is an example of collaborative requirements gathering approach.

4.8 _____ present files of data to be used and maintained by the system.

4.9 A _____ evaluates the practicality of your project plan in order to judge whether or not you are able to move forward with the project.

4.10 _____ is an evolutionary software process model that couples the iterative nature of prototyping with the controlled and systematic aspects of the waterfall model.

PART TWO

(Answer any FOUR Questions)

5. (a) As a passenger what information would you consider as important in a Railway Station? What activities will you carry out during implementation of a *Railway Information System* ? Make assumptions, wherever necessary.

(b) Is it essential that an economically feasible solution should be technically feasible ? Justify your answer.

(8+7)

6. (a) What is the difference between the fixed and variable operating costs ? Give an example of each.

(b) Write any four advantages and four disadvantages of using questionnaires?

(7+8)

7. (a) Draw Context Level and First Level DFDs for Library Information System. Make assumptions, wherever necessary.

(b) What is White Box testing ? How does it differ from Black Box Testing ?

(8+7)

8. (a) What is meant by Change Request ? Who makes a Change Request normally ? What are various steps involved in processing the Change Request ?

(b) Explain RAD (Rapid Application Development) model of SDLC.

(8+7)

9. (a) What is Forward Engineering ? How does it differ from Reverse Engineering

(b) What is the objective of Object Oriented Analysis ? What are the tasks involved in the performance of Object Oriented Analysis ?

(8+7)

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