CS/MBA/SEM-(4 FT & 6 PT)/SM-405/09

1. ..... *Signature of Invigilator*

2. ..... *Signature of the Officer-in-Charge*

Reg. No. | | | | | | | | | | | | | | |

Roll No. of the Candidate | | | | | | | | | | | | | | |

CS/MBA/SEM-(4 FT & 6 PT)/SM-405/09

ENGINEERING & MANAGEMENT EXAMINATIONS, APRIL – 2009

SYSTEM ANALYSIS & DESIGN (SEMESTERS - 4 & 6)

Time : 3 Hours] [Full Marks : 70

INSTRUCTIONS TO THE CANDIDATES :

1. This Booklet is a Question-cum-Answer Booklet. The Booklet consists of **32 pages**. The questions of this concerned subject commence from Page No. 3.
2. a) In **Group – A**, Questions are of Multiple Choice type. You have to write the correct choice in the box provided **against each question**.
   b) For **Groups – B** & **C** you have to answer the questions in the space provided marked 'Answer Sheet'. Questions of **Group – B** are Short answer type. Questions of **Group – C** are Long answer type. Write on both sides of the paper.
3. **Fill in your Roll No. in the box** provided as in your Admit Card before answering the questions.
4. Read the instructions given inside carefully before answering.
5. You should not forget to write the corresponding question numbers while answering.
6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
7. **Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.**
8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, **which will lead to disqualification**.
9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

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FOR OFFICE USE / EVALUATION ONLY

Marks Obtained

	Group – A										Group – B			Group – C				
Question Number																	***Total Marks***	***Examiner's Signature***
Marks Obtained																		

.....

Head-Examiner/Co-Ordinator/Scrutineer

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ENGINEERING & MANAGEMENT EXAMINATIONS, APRIL – 2009

SYSTEM ANALYSIS & DESIGN

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GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : 10 × 1 = 10

i) Which of the following techniques and notations would you find within UML ?

a) Use cases b) Class diagrams

c) State diagrams d) All of these. ☐

ii) Hardware study is required

a) to find out cost of computer system needed

b) to determine the type of computer system and software tools needed to meet the final system specification

c) to make sure that the system does not become obsolete

d) to find how to implement the system. ☐

iii) If every non-primary key attribute is functionally dependent on the whole primary key, then the relation is in at least

a) third normal form b) fifth normal form

c) fourth normal form d) second normal form. ☐

iv) The number of entity types that participate in a relationship describes

a) identifier b) degree

c) join level d) structure level. ☐

v) Actor is a component of

a) component diagram b) use case diagram

c) data flow diagram d) collaboration diagram. ☐

vi) The main objective of feasibility study is

a) to assess whether it is possible to meet the requirements specifications

b) to assess if it is possible to meet the requirements specified subject to constraints of budget, human resource and hardware

c) to assist the management in implementing the desired system

d) to remove bottlenecks in implementing the desired system. ☐

vii) The main objective of system modification is

a) to use the latest software tools

b) to meet the user's new / changed needs

c) to use the latest hardware

d) to have the most modern system. ☐

viii) System test plan is specified

a) when the final specifications are drawn up

b) during feasibility study

c) during the requirements specifications stage

d) during system study stage. ☐

ix) The objective of CASE tool is to improve

a) Desiging b) Project management

c) Productivity of software d) Manpower utilisation. ☐

x) A data dictionary records

a) Data elements and Data structures

b) all the error free cates

c) all these function

d) none of these. ☐

xi) Diagram in UML modeling which portrays the state of class instances and their relationship at a point in time is

a) class diagram b) use case diagram

c) state transition diagram d) object diagrm. ☐

xii) Which is the most important factor in hardware selection ?

a) Maintenance and support

b) Processor speed

c) Meeting functional requirement

d) Price and quality. ☐

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Highlight the differences between logical DFD and physical DFD. 5

3. Explain benchmarking. 5

4. Explain various reliability matrics. 5

5. List the characteristics of CASE tools. Explain some of the advantages of CASE tools. 5

6. Distinguish between coupling and cohesion. What are the desirable extent of these two required in interface design (*e.g.,* low or high coupling and cohesion) ? $2\frac{1}{2} + 2\frac{1}{2}$

7. Explain various software testing. How do unit testing and integrated testing differ ? 3 + 2

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following questions. 3 × 15 = 45

8. A college runs a student admission system every year, for a batch of 40 students for the first year of B-Tech course. The procedure on announcement of the admission is : newspaper advertisement is released, applications are called from the candidates, written test is administered and a list of the 40 students admitted is posted on the notice board. The selected candidates are asked to pay a Rs. 20,000 fee within a week from the date of announcement.

   In this domain perform the following activities : 3 × 5

   a) Identify actors

   b) Develop three use cases

   c) Complete the class diagram.

9. a) Discuss the 'Spiral Model' of system development.

   b) Write a note on User Interface Design.

   c) What is UML ? 5 + 5 + 5

10. a) Explain how the object oriented approach differs from traditional functional point approach of software development.

   b) Explain how black box testing differ from white box testing.

   c) Why normalisation is required ? What is achieved in 3 NF ? 4 + 5 + (3 + 3)

11. a) Applications for a admission to an extension course are screened using the following rules : for admission, a candidate should be sponsored by his employer and he should possess prescribed minimum academic qualifications. If his fee is also paid, then he is sent a letter of admission. If his fee is not paid, then a letter of provisional admission is sent. In all other cases a letter of regret is sent.

   Derive the Decision table and decision tree from the above problem.

   b) List the 4 criteria for evaluating system hardware. What are the main options for acquisition of computer hardware ? (5 + 5) + (3 + 2)

12. Write short notes on any *three* of the following : 3 × 5

    a) BPR

    b) Classes and objects

    c) Data Dictionary

    d) Inheritence and polymorphism

    e) Type of maintenance in SDLC

    f) SRS.

13. Build the DFD :

    Argos has a store in Patrick Street, Cork. Costomers come into the store and browse the catalog of products. Once they have located the product they would like to purchase, they can take the unique identification number each product has and enter it into the inventory devices on the shop floor. By entering the number, the systm will be able to show the customer the details of the product, whether it required home delivery and how many are left in stock. If the customer wants to purchase the product they fill in a slip of paper with the identification code and the desired quantity and queue for the check-out and give it to the sales assistant. At the check-out, the sales assistant will take the slip and imput the identification number into the system via their keyboard. If it shows that there are still some of the product in stock, the customer will be asked for payment (cash, laser or credit card). Once the transaction is complete it is saved to the transaction file and the customer will be given a receipt which also shows what counter they should collect the product at and an approximation of how long they will be waiting. In the stock room as transactions occur, staff are notified of the product and quantity and will search the stock room and bring the product to the counter for collection. They will input into the system that the order has been filled and that the customer can collect it (the product catalog will be amended for stock level) ; the overhead screen will indicate to the customer that they may collect their order and at which counter. The customer may then pick up the product and leave the store. Periodically, as products are purchased the stock will run out (stock levels will be checked) and will have to be reordered from the supplier. Argos uses a wide number of suppliers so they keep a list of their contact details and the products they supply. Argos records all details relating to orders in the product-order file, this can be used to verify incoming orders later. The supplier receives a batch order for products periodically which they will fill and notify Argos of the delivery time and cost.

END