Univ. of Mansoura
Faculty of Computer and Information Sciences

Final Exam of: Systems Analysis and Design
First Semester, Jan 2009/2010
Time: 3 hours
3th Year, Jan 2009/2010
Examiner: Dr. Ahmed A. Elfotouh

Answer the following Question:

Q1: Define each of the following terms:

1. System Service Request
2. Project initiation and planning
3. Baseline project plane
4. JAD session leader
5. Multivalued attribute
6. Recurring cost
7. Intangible Cost
8. Modularity

Q2: Multiple-Choice Questions:

1. Which of the following is not one of the four major classes of information systems?
   A - DSS  B- Collaboration system  C- MIS  D- Expert system

2. Product number, quantity in stock, and the supplier’s name are examples of:
   A - data  B- data Flow  C- information  D- processing logic

3. Generating alternative initial designs would most likely be done during:
   A - design  B- initiation and planning  C- implementation  D- analysis

4. The justification for an information system, presented in terms of the tangible and intangible economic benefits and costs, and the technical and organizational feasibility of the proposed system best describes:
   A- business case  B-justification walkthrough  C- Baseline project  D- Statement of work plan

5. Faster decision making, information processing efficiency, and improved asset utilization are examples of:
   A - intangible costs  B- tangible costs  C- intangible benefits  D- tangible benefits

6. Assume that the NPV of all benefits is 275,000 L.E. and the NPV of all costs is 200,000 L.E. the overall ROI is:
   A - .50  B- .84  C- .375  D- .272

7. Application software maintenance, incremental data storage expense, and incremental communications are examples of:
   A – Intangible costs.  B-recurring costs  C- tangible benefits  D- one-time costs

8. During the analysis phase, which of the following has as its primary purpose the collection of system requirements simultaneously from the key people involved with the system?
   A – requirements structuring  b- prototyping  c-JAD  d- business process reengineering

9. Graphically representing the processes that capture, manipulate, store, and distribute data between a systems and its environment and among components within a system best describes:
   A – logic modeling  B- data modeling  C-process modeling  D- dynamic modeling

(15 point)  (10 point)
10- A picture of the movement of data between external entities and the processes and data stores within a system best describes a(n):
   A - DFD  B - decision table  C - ERD  D - Gantt chart

11- Updating a customer's account to reflect a recent payment is represented on a data flow diagram as:
   A - data flow  B - process  C - data store  D - source

12- Which of the following is not a process model?
   A - DFD  B - ERD  C - Functional hierarchy diagram  D - Oracle's process modeler

13- Which of the following would be placed in the action stub section of a decision table?
   A - employee type  B - hours worked  C - Prerequisite course  D - generate receipt

14- When deciding between decision tables and decision trees?
   A - decision trees are the best for portraying complex logic  B - decision trees are the best for portraying simple logic
   C - decision trees are the worst for making decisions  D - decision tables are the worst for manipulating.

15- A detailed model that shows the overall structure of organizational data while being independent of any database management system or other implementation considerations best describes:
   A - conceptual data model  B - logical data model  C - process model  D - logic model

16- Which of the following is not an entity type?
   A - name  B - store  C - product  D - work center

17- Which of the following techniques and notations would you find within UML?
   A - use cases  B - class diagrams  C - state diagrams  D - all of the above

18- Which of the following is the multiplicity notation that represents optional many?
   A - 0..X  B - 1..X  C - 1..1  D - 0..*

19- When an object is an instance of more than one class, this is called:
   A - aggregation  B - expansion  C - multiple classification  D - a repeating group

20- Which of the following is shown within square brackets on a state diagram?
   A - a state  B - an event  C - an actor  D - a guard condition

Q3: Fill in the Blanks:

1- ................. Phase of the SDLC in which an organization's total information systems needs are analyzed and arranged.

2- ................. iteratively building a working version of a system.
3- The ......................... of a company typically states in very simple terms what business the company is in.

4- ............................ a generic information systems planning methodology that attempts to gain a broad understanding of the information system needs of the entire organization.

5- ............................. a process of assessing the development organization’s ability to construct a proposed system.

6- ............................. questions in interviews and on questionnaires that ask those answering the questions to choose from among a set of pre-specified responses.

7- ............................. data at rest, which may take the form of many different physical representations.

8- ............................. a collection of entities that share common properties.

9- ............................. binary relationship in which the maximum number of entity instances related to one instance of the other type of entity is greater than one.

10- ......................... a detailed, logical representation of the entities, associations, and data elements for an organization or business area.

Q4: Write down in details about these topics: (15 point)

1. The four major SDLC phases?
2. The several characteristics for a good systems analyst to have during requirements determination?
3. What are the linkages between data flow diagrams, decisions tables, class-object diagrams and entity-relationship diagrams?
4. Describe advanced techniques for collecting information during Analysis?
5. What's the difference between a logical system description and a physical system description?
Q5:  (15 point)

1) Draw a context diagram and level-0 DFD for a university class registration system?

2) Draw a Class-Object Diagram and Use-Case diagram for the following Situation:

“A college courses may have one or more scheduled sections, or more not have a scheduled section. Attributes of COURSE include Course ID, Name, and Units. Attributes of SECTION include Section No, and Instructor. A method that is required of all Courses is Change Course Description. A method that is required of all sections is one that will delete a section.

3) According to the request from ‘Sara Ahmed’, customers will remain on ‘Toys’ mailing list only if they have requested a catalog, ordered in the past two years, or registered on ‘Toys’ Web site. In addition, those customers who registered on the Web site will receive a special discount certificate.

Required:
Using a decision tree and a decision table, Select CUSTOMER status for mailing list and certificate?

Good Luck...