Ministry of Higher Education
Saudi Electronic University
College of Computing and Informatics

Midterm Examination Cover Sheet

First Semester: 1435-1436 / 2014-2015

Course Instructor:		**Exam Date:**	
Course Title:	**System Analysis and Design**	**Course Code:**	
Exam Duration:		**Number of Pages:** (including cover page)	

Exam Guidelines

- **Mobile phones are not permitted.**
- **Calculators are permitted.**

Marking Scheme

Questions	Score

Student Name:		**Student ID:**	

Question 1(MCQs): Please circle the appropriate choice. [10]

1. Which of the following project roles would focus on new business processes and value?
   i) Systems analyst
   ii) Business analyst
   iii) Infrastructure analyst
   iv) Change management analyst
   v) Project manager
2. Which of the following is not a method for determining business requirements?
   i) Benchmarking
   ii) Interviewing
   iii) Observation
   iv) Document analysis
   v) Questionnaires and surveys
3. Joint Application Development (JAD) is
   i) A structured group process focused on determining requirements
   ii) Involves project team, users, and management working together
   iii) Both a) and b) statements are correct
   iv) Only a) is correct
   v) Only b) is correct
4. Requirement specification is carried out
   i) after requirements are determined
   ii) before requirements are determined
   iii) simultaneously with requirements determination
   iv) independent of requirements determination
5. BPA stands for
   i) Business Process Automatic
   ii) Business Process Automotive
   iii) Business Process Automation
   iv) None
6. In a DFD external entities are represented by a
   i) rectangle
   ii) ellipse
   iii) diamond shaped box
   iv) circle
7. External Entities may be a
   i) source of input data only
   ii) source of input data or destination of results
   iii) destination of results only
   iv) repository of data
8. Which of the following gives a logical structure of the database graphically?
   i) Entity-relationship diagram
   ii) Entity diagram
   iii) Database diagram

iv) Architectural representation

9. The entity relationship set is represented in E-R diagram as
   i) Double diamonds
   ii) Undivided rectangles
   iii) Dashed lines
   iv) Diamond
10. Which of the following is NOT true for systems analysts?
   i) They create value for an organization
   ii) They enable the organization to perform work better
   iii) They do things and challenge the current way that an organization works
   iv) They play a key role in information systems development projects
   v) They are the project sponsors for system proposals

Question 2 (TFs): Please write T (True) or F (False) in front of the statement.

1. Interviewing is generally done in the analysis phase of the SDLC. T
2. Generally after a person has gained experience as a project manager, he or she can be promoted to being a systems analyst. F
3. Requirements determination is the single most critical step of the entire SDLC. T
4. Non-Functional Requirements is a process the system has to perform and Information the system must contain. F
5. Logical models show not only what a system is or does, but also how the system is implemented. F
6. 2. In data flow diagrams, open-ended boxes represent data stores. T
7. ERD is an acronym for Enterprise Reliability Diagrams. F
8. ERD's are drawn in several levels: Context ERD diagrams; Level 0 ERD diagrams; Level 1 ERD diagrams. F
9. Being a systems analyst is one of the most interesting, exciting and challenging jobs available. T
10. In today's organizations, an approval committee must review and monitor project progress to ensure project continuance. T

Question 3: How will you define conflict in a project and what methods can you adopt to avoid conflicts within the project teams? [7]

Ans: A conflict is a situation where different stakeholders or team members have different interpretations of project requirements and want to adopt different methods to achieve them. The conflicts can be resolved by:

1. Clearly define plans for the project;
2. make sure the team understands how the project is important to the organization;
3. develop detailed operating procedures and communicate these to the team members;
4. develop a project charter;
5. develop schedule commitments ahead of time;
6. forecast other priorities and their possible impact on the projects

Question 4: Read the following case study carefully and write the use-case for this case-study. [9]

Req # 4.3- Submit Grades on Blackboard

Description: The purpose of this use case is to describe the process of submission of grades by instructor in the blackboard. To execute this use case, it is necessary that marks of all assignments be already submitted in the blackboard. Teacher clicks on submit grades button on his blackboard account. After entering the submit grade page, teacher enters the roll number of the student and clicks "fetch marks". On clicking this button, system fetches all the student marks from the blackboard database and presents total marks and deserving grade. Teacher clicks on submit final grade and student is awarded that grade. The process finishes here.

Ans: The values have to be filled in the use-case template taught in class:

Use-Case Name: Submit Grades on Blackboard

Use-Case ID: 4.3

Importance Level: High, Medium, Low (whichever students give as input)

Primary Actor: Teacher

Short Description: The purpose of this use case is to describe the process of submission of grades by instructor in the blackboard.

Trigger: All the student marks should already have been entered in the blackboard.

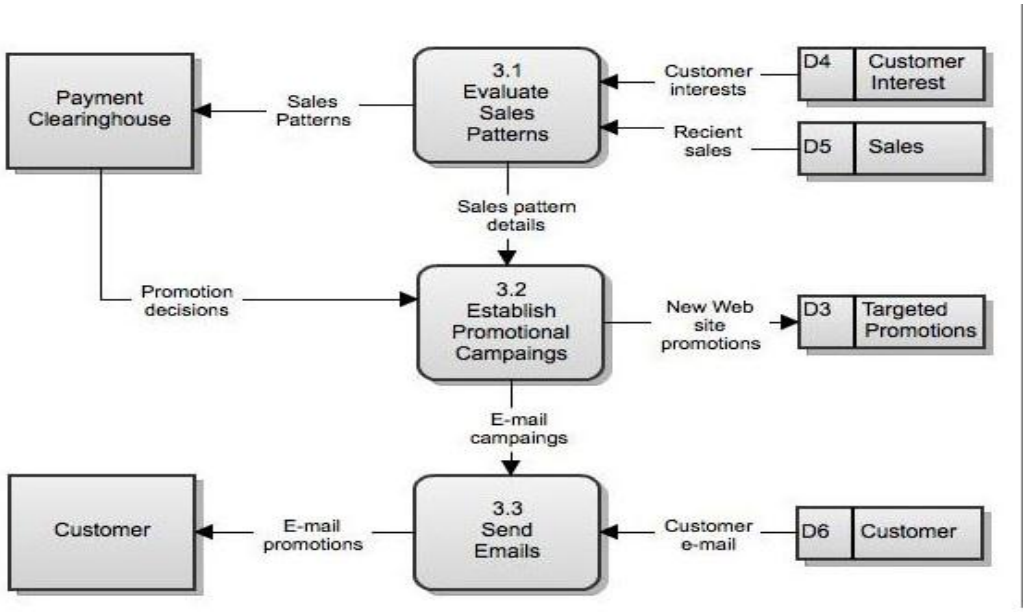
Type (optional): External Temporal (it is OK even if the student has missed this part.

Major Inputs: (1) Click Submit Grade (2) Enter Student Roll Number (3) Click fetch marks button (4) Click Submit Final Grade [For all these inputs, source is Teacher].

Major Outputs: (1) Student Marks (2) Deserving Grade [For all these outputs, destination is Teacher]

Major Steps Performed: (1) Teacher clicks on submit grades button.
(2) Teacher enters student roll number.
(3) Teacher clicks on fetch marks button.
(4) Teacher views student marks and deserving grade.
(5) Teacher clicks on submit final grade button.

Question 5: Read the following DFD carefully and list the names of all the processes, data-flows, data-stores and external entities. Also answer which level of DFD does this diagram represent? [7]



Ans: This is a level 1 DFD.
Processes: (1) Evaluate Sales Pattern (2) Establish Promotional Campaigns (3) Send Emails
Data Flows: (1) Sales Patterns (2) Promotion Decisions (3) E-mail Promotions (4) Customer Interests (5) Recent Sales (6) New Website Promotions (7) Customer Email (8) Sales Pattern Details (9) E-mail Campaigns
External Entities: (1) Payment Clearinghouse (2) Customer
Data Stores: (1) D3 Targeted Promotions (2) D4 Customer Interest (3) D5 Sales (4) D6 Customer

Q 6: What is an Entity Relationship diagram? Explain its purpose and working. Also give small explanation of (1) Entity (2) Identifiers (3) cardinality and (4) data Dictionary. [7]

Ans: An Entity Relationship Diagram (ERD) is a visual representation of different data using conventions that describe how these data are related to each other. ERD symbols can show when one instance of an entity must exist for an instance of another to exist.

Entity: A person, place, event, or thing about which data is collected Must be multiple occurrences to be an entity.

Identifiers: One or more attributes can serve as the entity identifier, uniquely identifying each entity instance. Concatenated identifier consists of several attributes. An identifier may be 'artificial,' such as creating an ID number.

Cardinality: refers to the number of times instances in one entity can be related to instances in another entity

1. One instance in an entity refers to one and only one instance in the related entity (1:1)
2. One instance in an entity refers to one or more instances in the related entity (1:N)
3. One or more instances in an entity refer to one or more instances in the related entity (M:N)

Data Dictionary: Metadata is information stored about components of the data model. Metadata is stored in the data dictionary so it can be shared by developers and users throughout the SDLC