King Saud University

College of Computer and Information Sciences
Computer Science Department

Course Code:	**CSC 342**	
Course Title:	**Software Engineering**	
Semester: 2	**Spring 2017**	
Exercises Cover Sheet:	**Solution Midterm 1**	**1 h 30 mn**

Student Name:	…….
Student ID:	…….
Department Name:	…….

Tick the Relevant	Computer Science B.Sc. Program ABET Student Outcomes	NCAAA Outcomes	Question No. Relevant Is Hyperlinked	Covering %
	a) Apply knowledge of computing and mathematics appropriate to the discipline;	**1.1**	**----**	**-----**
√	**b) Analyze a problem, and identify and define the computing requirements appropriate to its solution**	**2.1**	Ex. 1 - 2	**67%**
√	**c) Design, implement and evaluate a computer-based system, process, component, or program to meet desired needs;**	**2.2**	**-----**	**------**
√	**d) Function effectively on teams to accomplish a common goal;**	**3.1**	**-----**	**------**
√	**e) Understanding of professional, ethical, legal, security, and social issues and responsibilities;**	**1.2 – 3.2**	Ex. 3	**33%**
	f) Communicate effectively with a range of audiences;	**4.1**	**----**	**-----**
	g) Analyze the local and global impact of computing on individuals, organizations and society;	**2.3**	**----**	**----**
	h) Recognition of the need for, and an ability to engage in, continuing professional development;	**2.4**	**-----**	**---**
√	**i) Use current techniques, skills, and tools necessary for computing practices.**	**1.3**	**-----**	**---**
	j) Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices;	**1.4**	**-----**	**---**
√	**k) Apply design and development principles in the construction of software systems of varying complexity;**	**1.5**	**-----**	**---**

Exercise 1: ***Answer with True or False. If False give the correct statement*** *(3 points)*

a. For each application there is an universal method that is applicable to develop it.

False

b. User requirements: Statements in high level language plus diagrams of the services the system provides and its operational constraints.

False

c. System requirements: A detailed software description which can serve as a basis for the analysis.

True

d. Validation testing is intended to know are we building the product right.

False

e. Verification is intended to show that the software meets its requirements.

False

Exercise 3: ***Process Model and Analysis*** *(7 points)*

Consider the following problem description:

A Library System has two subsystems: The user interface subsystem which shall be implemented as simple HTML without frames or Java applets, and the borrow subsystem. The customer wants to participate in the development of the user interface system. The borrow subsystem system allows members to borrow books. The system allows each member to search and find the book before borrow it on eight seconds. Besides borrow and return books, a librarian must also handle the addition and removal of members and adds new books. When a book is returned, the librarian must update the books states. The customer wants that the Library System will be developed using the Object Oriented Approach and he wants to use the borrow subsystem once is completed.

1. Suggest the most appropriates software process models that might be used as a basis for managing the development of the system. Giving reasons for your answer based on the type of subsystems being developed. *(4.5 points)*

Incremental process model: user interface subsystem (Exploratory process model), borrow subsystem (Waterfall process model)

2. Identify **three** functional and **two** non-functional requirements for the above description.

- Functional Requirements: *(1.5 points)*
  - borrow subsystem system allows members to borrow books
  - system allows each member to search and find the book
  - system allows the librarian to handle the addition and removal of members and adds new books
- Non-functional requirements *(1 point)*
  - HTML without frames or Java applets
  - Library System will be developed using the Object Oriented Approach

Exercise 3: ***Ethics & Professional Practice*** *(5 points)*

Ali used to work in a small computer firm and there is no agreement that Ali's work will be the property of the company. Ali now working for a much larger computer firm and there is an agreement that Ali's work will be the property of the company.

Ali tries to adapt the software he ever helped to make in the small firm. Ali installs the software and makes some changing which make his boss interested. According to the agreement, Ali's work will be the property of the large firm. The large firm does not want to negotiate with the small firm.

1. Is there a violation of the software code of ethics? Justify your answer. *(2.5 points)*

   Engineers shall not reveal facts, data, or information without the prior consent of the client or employer except as authorized or required by law or this Code. Derek action to adapt the software from the small firm has revealed the confidential information which must not be published to other firms. Derek tries to make a confession to his previous firm that he has made adaption on the software developed in the firm. Now, it will be grabbed by the la rge firm as their property. Derek insists the previous firm to make a patent about their trade -secret.

2. If yes, give the Code of Ethics that justify your answer. *(2.5 points)*

   2.02 – 2.03 -3.13…

Result					
Question No.	**Relevant Student Outcome**	**SO is Covered by %**	**Full Mark**	**Student Mark**	**Assessor's Feedback**
1	b	20%	3		
2		47%	7		
3	e	33%	5		
Totals		**100%**	**15**		
I certify that the work contained within this assignment is all my own work and referenced where required. **Student Signature:** **Date:**					**Feedback Received:** **Student Signature:** **Date:**