

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION

SUMMER SEMESTER, 2018-2019

DURATION: 1 Hour 30 Minutes

FULL MARKS: 75

SWE 4401: Software Requirement and Specifications

Programmable calculators are not allowed. Do not write anything on the question paper.

There are **4 (four)** questions. Answer **3 (three)** of them including question 1 and 2.

Figures in the right margin indicate marks.

1. [Mandatory]

"The Serpents", a software company, will soon start to work on a Management Information System (MIS) project - "Dengue Data" or D2. A cross-functional team has been built for the project where Munir is a senior developer and Afreen is the team lead. Afreen no longer write code regularly but has very good team management skill. D2 management has appointed Shekh, one of their officers, to work with the team. Here is his description of the project:

There are 50 field stations in 50 upazillas to collect dengue patients information. Each field station has a field officer and 5 to 10 field operators. The field operators collect the data and submit them to field officer. Field officer scrutinize everyone's data and then approve or reject them. The data that are collected includes Patient's name, Patient's age, Patient's sex etc. All the operations are done through a web interface and the operations must be authenticated.

Some field operators may not be expert computer users, therefore the software should have built in tutorials.

The project manager (PM) works in the head office and will usually generate reports once in a week. The reports will usually give some insights of which age group are more vulnerable to dengue, which area are more affected etc. Based on those reports, PM should be able to send Upazilla wise decisions to the field officers that need to be taken through the MIS software.

The data generated through this software is also made available to researchers. Any researcher can request for a data and the PM can approve or disapprove the request. The data will be provided as Spreadsheet.

Afreen has convinced Shekh to participate in the story writing workshop with rest of the team. He has also agreed to regularly collaborate with Afreen. But being a very busy person, he will only meet the development team biweekly. Shekh believes he has a clear vision about the project, therefore his priorities of the requirements will remain somewhat stable. Also, he is OK with checking the progress biweekly or even monthly.

Afreen decides to do Scrum for the D2 project, even though many of the teams at The Serpents follow Kanban.

- a)
 - i. Explain why Afreen has chosen Scrum over Kanban. 5+1
 - ii. Mention what Scrum roles suite best for Shekh and Afreen.
- b) Clearly, PM is a potential user role for the D2 project. 4+5
 - i. Identify 4 more user roles.
 - ii. Write description of the PM user role.
- c) Between Munir, Afreen and Shekh - 4+4
 - i. Who should usually write the stories? Why?
 - ii. Who should identify technical risks about requirements? Why?

- d) Write the card of 7 user stories for D2. You can consider that the stories are generated in the story writing workshop. Use this template for the stories: 7

As a (role), I want (function) so that (business value)

2. [Mandatory]

- a) The following stories are in descending order of priority. Assume that the team is doing Scrum. 10

Story	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Story Point	5	5	8	3	8	2	5	?	8	3	1	3	2	1

Story C can be split into C1 (point 3) and C2 (point 5) and story E can be split into E1 (point 5) and E2 (point 3). H cannot be estimated because the team do not have knowledge about the required technology. Assume that a spike H1 (point 3) was conducted and the team estimated that the actual task H2 will have story point 3.

Priorities of the broken down stories are same as the original story. Do an iteration plan with the stories considering velocity of 15.

- b) The following table below shows some stories' entrance date in different columns in Kanban board. For the sake of simplicity, assume that the dates are from July 2018 and all the entrance times are 8 in the morning. 4+2
+4

	Q	R	S	T	U	V	W	X
ToDo	1	1	1	1	5	5	5	5
Developing	2	1	1	8	6	8	7	5
Testing	3	2	4	10	8	12	9	7
Done	4	3	8	12	11	14	11	8

- Calculate Lead Time (LT) and Cycle Time (CT) for each of the stories.
- Calculate Average LT and Average CT.
- What is your comment about story T in terms of its LT and CT?

- a) Elaborate the term INVEST. 6

b) Two junior developers were discussing during a story writing workshop that why a certain story is not good because it is too big and will be hard to estimate. A senior developer politely asked them to stop the discussion. Why? 6

c) During a user role consolidation, a role was discarded although there were not any roles significantly overlapping that role. What can be the reason behind the role being discarded? 3

d) You find several bug reports and some change requests which are urgent but too small to estimate. What do you do with them? 3

e) Assume that you are working for a medical service software. You find that you cannot estimate a story because there are some medical terms used which you do not understand. 4+3

 - Is the story necessarily a bad one? Justify your answer.
 - What should you do to properly estimate the story?
- a) Draw a low fidelity prototype of the system described in Question 1. 8

b) Explain feature freeze and triage in terms of Scrumban. Can the two happen at the same time? Justify. 4+5

c) Describe the steps of user role modeling. 8