College of Information Technology
Department of Computer Science

Course: Software Engineering (COMP 433)

Section: ☐ Dr Yousef Hassouneh ☒ Dr Adel Taweel

Midterm Exam

11 May 2014, 14:00

Student Name:_____ Student ID: ....

Enter your student name and number in the spaces provided above. Do this now.

CLOSED BOOK EXAM: BOOKS, NOTES OR OTHER MATERIAL MAY NOT BE BROUGHT INTO THE EXAMINATION ROOM.

TIME ALLOWED: 75 minutes

QUESTION ONE is MANDATORY. ANSWER EITHER QUESTION TWO or QUESTION THREE.

NO CREDIT WILL BE GIVEN FOR ANSWERING ADDITIONAL QUESTIONS. ALL QUESTIONS CARRY EQUAL WEIGHT.

PROVIDE YOUR ANSWERS ON SEPARATE SHEETS OF PAPER.

ATTACH THIS EXAM PAPER TO YOUR ANSWER SHEET(S).

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ANSWERED QUESTIONS: ------Q1------;---Q3...
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DO NOT REMOVE THIS EXAM PAPER FROM THE EXAMINATION ROOM

Question One [total: 25 marks] -MANDATORY

(a) Describe the attributes of good software. List three key-challenges facing software engineering in large or complex software development?

[7 marks]

(b) Describe the common fundamental activities in all software processes.

[4 marks]

(c) The testing phase of a software life cycle include a number of test types or activities; describe three of these test types or activities. Order these three types in the likely order of their occurrence in development life cycle.

[6 marks]

(d) Distinguish between requirements elicitation and analysis. Explain a technique that could be used to achieve requirement elicitation.

[8 marks]

Question Two [total: 25 marks]

(b) Explain the shortcomings of the waterfall model. Under what circumstances the waterfall model is recommended for use? Give an example of a domain where the waterfall model is useful.

[6 marks]

(c) Explain what you understand by completeness and consistency of requirements. Give an example of each.

[6 marks]

(b) In system modelling, distinguish between generalisation and composition. Give an example, using UML notations, to illustrate your answer.

[6 marks]

d) Distinguish between functional and non-functional requirements. Give an example of each, making sure that the non-functional requirement is measurable/verifiable.

[7 marks]

Question Three [Question Total: 20 marks]

Consider the following (part of a) system description.

A user email system includes a module that allows registered users to enter the system. It includes the following activities: 1- to read emails from the registered student mailbox; 2- to write new messages; 3- to send the written new messages to other email addresses; 4- forward received messages to other email addresses.

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(a) Given the above requirements, define the use cases for the registered user.

[7 marks]

(b) Given the above activities, draw a class diagram(s) for the registered user.

[7 marks]

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(c) Given the above use cases defined in (a), draw a sequence diagram for the "send new messages" use case.

[5 marks]

(d) In use case modelling, distinguish between <<include>> and <<extend>> use case extensions? Illustrate these in your defined use cases.

[6 marks]

END OF QUESTIONS

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