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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER 2
SESSION 2017/2018**

COURSE NAME : SOFTWARE ENGINEERING
COURSE CODE : BEC 41803
PROGRAMME CODE : BEJ
EXAMINATION DATE : JUNE / JULY 2018
DURATION : 3 HOURS
INSTRUCTION : ANSWERS FIVE (5) QUESTIONS ONLY

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THIS QUESTION PAPER CONSISTS OF **FOUR (4) PAGES**

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- Q1** (a) List four (4) software process activities. (4 marks)
- (b) Illustrate a complete diagram of activity cost distribution for Waterfall Model and Iterative Development. (8 marks)
- (c) Consider a task you are not familiar with, such as designing a zero-emissions car. Explain how would you solve the problem. (8 marks)
- Q2** (a) Describe the differences between Plan-driven Development and Agile Development. (4 marks)
- (b) Draw a complete diagram of the Ethnography and Prototyping for requirements analysis. (5 marks)
- (c) As a software developer, one of the requirement engineering activity involves your technical staff working with customers to find out about the application domain, the services that the system should provide and the system's operational constraints. Analyze this activity by providing its name, stages and problems in this activity. (11 marks)
- Q3** (a) Describe the Unified Modelling Language (UML) diagram types in system modelling. (10 marks)
- (b) **Table Q3(b)** shows the tabular description of the transfer data use-case for a Mental Health Care (MHC) System. Transform the tabular description of the transfer data use-case to the sequence diagram for view patient information. (10 marks)



Table Q3(b)

MHC-PMS: Transfer data	
Actors	Medical receptionist, patient records system (PRS)
Description	A receptionist may transfer data from the MHC system to a general patient record database (MHCPMS-DB) that is maintained by a health authority. The information (PatientInfo) transferred may either be updated personal information (address, phone number, etc.) or a summary of the patient’s diagnosis and treatment.
Data	Patient’s personal information, treatment summary
Stimulus	User command issued by a medical receptionist
Response	Confirmation that PRS has been updated
Comments	The receptionist must have appropriate security permissions (Authorization) to access the patient information and the PRS.

- Q4** (a) List three (3) benefits of Reused-Based Software Engineering. (3 marks)
- (b) Explain the two (2) types of component interfaces in Component-Based Software Engineering. (6 marks)
- (c) **Figure Q4(c)** shows the model of a data collector component for a sensor. Redraw the model by adding an adaptor linking a data collector and a sensor, where the sensor provides interface to start, stop and getdata functions. (7 marks)

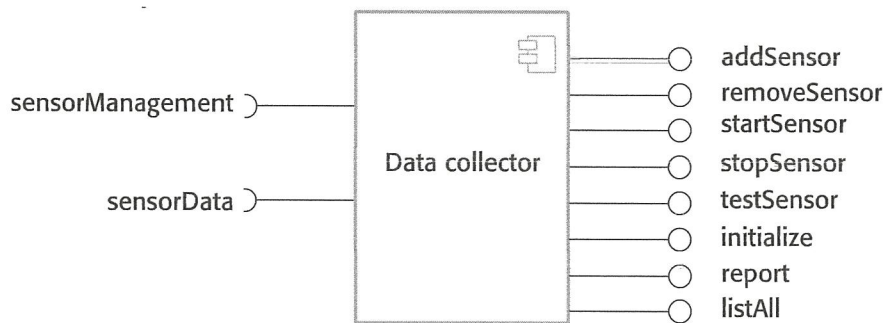


Figure Q4(c)

- (d) Describe the Enterprise Resource Planning (ERP) system. (4 marks)

- Q5** (a) There are two (2) goals in software testing process. Explain it. (6 marks)
- (b) Draw a complete diagram of Test-Driven Development (TDD). (7 marks)
- (c) A passenger aircraft is composed of several millions of individual parts and requires thousands of persons to assemble. A four-lane highway bridge is another example of complexity. The first version of Word for Windows, a word processor released by Microsoft in November 1989, required 55 person-years, resulted into 249,000 lines of source code, and was delivered four (4) years late. Aircraft and highway bridges are usually delivered on time and below budget, whereas software is often not. Discuss what are, in your opinion, the differences between developing an aircraft, a bridge, and a word processor, which would cause this situation. (7 marks)

-END OF QUESTIONS -

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