



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
(ONLINE)
SEMESTER II
SESSION 2019/2020**

COURSE NAME : SOFTWARE ENGINEERING
COURSE CODE : BIT 10103
PROGRAMME : BIT
EXAMINATION DATE : JULY 2020
DURATION : 3 HOURS
INSTRUCTION : 1. ANSWER **ALL** QUESTIONS.
2. THE STUDENTS SHOULD
UPLOAD THE ANSWER
BOOKLET (PDF/ WORD
FORMAT) WITHIN 30 MINUTES
AFTER EXAMINATION PERIOD.

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

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Q1 Based on **Figure Q1**, answer the following questions.

PC festival is a famous PC festival, held in Johor Baharu every year. Since its first edition, it has gone through several major changes regarding its theme, duration and location. From this year on, the tickets will be sold in three distinct ways: (a) traditionally which will be sell by the two events agencies, (b) in electronic format directly from the festival website, and (c) through bus ticket. In order to avoid double selling, all parties will have access to the same unique tickets database of the new system. A partnership with the ticketing company needs to be set up so they can sell combi-tickets including both the festival admission fee and the bus ride to the festival venue at reduced price, from anywhere in Johor Baharu. Since tickets will also be sold online, ABC Payment Inc will be contacted to provide and ensure the security of the online payment service. Additionally, upon arrival at the festival venue, each participant has to self-check in at a touch screen terminal, which scans the barcodes on his/her ticket and issues a name tag with an electronic chip. The company will deploy XYZ Inc to provide the name tag where it can be used to load money, such that whenever she/he wants to purchase snacks or goodies, she/he does not have to use cash any more, thus reducing waiting times. The organizers decided to hire you as system analyst to propose a new system within 3 months that completely modernize the tickets selling system.

FIGURE Q1

- (a) Apply an appropriate software development model for the new system in **Figure Q1**. (6 marks)
- (b) Outline **THREE (3)** reasons of your answer in **Q1(a)**. (6 marks)
- (c) Prepare **FOUR (4)** methods to gather further requirements that can help to build the new system. (8 marks)

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Q2 Draw the context diagram based on the scenario in **Figure Q2**.

A prospective member fills in an application form. Then the librarian processes the application form and issues a library card member. The new member then browses the catalogue and finds a loan item (books, magazines, videos, DVDs and cassettes). The new member then borrows the loan item by giving his/her library card plus the loan items to the librarian. The librarian records the borrowings and returns the library card and loan items to the borrower. At some future date, the borrower returns the loan items to the library. The librarian checks in the items. The member may also reserves a loan item or arrange an interlibrary loan from another library. When these items become available at the library, the requesting member is notified. The librarian maintains the catalogue by getting a list of the latest items from book suppliers every month. At the end of each month the librarian creates an order for the book suppliers. When the items arrive the librarian labels them and makes them available in the catalogues.

FIGURE Q2

(20 marks)

- Q3** (a) Outline **TWO (2)** important reasons of software testing for a software in a life support machine. (4 marks)
- (b) Outline **TWO (2)** challenges of software testing. (4 marks)
- (c) Differentiate between validation and verification. (4 marks)
- (d) Differentiate **TWO (2)** between black box testing and white-box testing. (8 marks)

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- Q4** (a) Justify the important of software requirements. (4 marks)
- (b) Outline **FOUR (4)** generic activities of requirements engineering process. (8 marks)
- (c) Requirements based testing is a systematic approach to derive a set of test for each requirement. Specify **FOUR (4)** related test for requirements statements in **Figure Q4**

Mental Care System Requirements:

- If a patient is known to be allergic to any particular medication, then prescription of that medication shall result in a warning message being issued to the system user.

If a prescriber chooses to ignore an allergy warning, they shall provide a reason why this has been ignored.

FIGURE Q4

(8 marks)

- END OF QUESTION-

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