



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

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

COURSE NAME : SOFTWARE ENGINEERING PRINCIPLES
COURSE CODE : BIE 10103
PROGRAMME CODE : BIP
EXAMINATION DATE : JUNE / JULY 2018
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

- Q1** (a) Explain why a plan must be continually reviewed during a software project.
(5 marks)
- (b) Answer **Q1(b)(i)** and **Q1(b)(ii)** based on **Table Q1**.

Table Q1

Task	Duration	Dependencies
T1	10	
T2	15	T1
T3	10	T1, T2
T4	20	
T5	10	
T6	15	T3, T4
T7	20	T3
T8	35	T7
T9	15	T6
T10	5	T5, T9
T11	10	T9
T12	20	T10
T13	35	T3, T4
T14	10	T8, T9
T15	20	T12, T14
T16	10	T15

- (i) Draw a bar chart.
(5 marks)
- (ii) Draw a network diagram.
(5 marks)

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Q2 Answer Q2(a)-Q2(c) based on case study in Figure Q2.

The "Amazing Lunch Indicator" is a GPS-based mobile application which helps people to find the closest restaurants based on the user's current position and other specification like price, restaurant type, dish and more. The application should be free to download from either a mobile phone application store or similar services. Restaurant owners can provide their restaurant information using the web-portal. This information will act as the bases for the search results displayed to the user. An administrator also uses the web-portal in order to administer the system and keep the information accurate. The administrator can, for instance, verify restaurant owners and manage user information. Furthermore, the software needs both Internet and GPS connection to fetch and display results. All system information is maintained in a database, which is located on a web-server. The software also interacts with the GPS-Navigator software which is required to be an already installed application on the user's mobile phone. By using the GPS-Navigator, users can view desired restaurants on a map and be navigated to them. The application also has the capability of representing both summary and detailed information about the restaurants.

Source: Software Requirement Specification (SRS) Amazing Lunch Indicator

Figure Q2

- (a) Write **FIVE (5)** functional requirements. (10 marks)
- (b) Write **FIVE (5)** non- functional requirements. (10 marks)
- (c) Draw a use case diagram. (10 marks)
- Q3** (a) Suggest components of a mobile application that displays information about flights arriving and departing from a particular airport using the basic model of an information system. (10 marks)
- (b) Design an architecture of a system that accepts natural language commands and translates these into Structured Query Language (SQL) using the generic model of a language processing system. (10 marks)

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- (c) Design a layered architecture for the case study in **Figure Q3**.

XYZ Sdn. Bhd. is an utility company. The company decided to develop an information system to maintain their information on buildings, vehicles, equipments, etc. It is intended that the system will be updated by staff working in the field using mobile devices as new asset information becomes available. The company has several existing asset databases that should be integrated

Figure Q3

(10 marks)

- Q4** (a) Explain why testing can only detect the presence of errors, not their absence. (2 marks)
- (b) List **FOUR (4)** test levels. (4 marks)
- (c) Identify **ONE (1)** test basis or test object for each test level in **Q4(b)**. (4 marks)
- (d) Explain the difference between system testing and acceptance testing. (5 marks)
- (e) Identify possible groups of test input for the fields in questions **Q4(e)(i)-Q4(e)(v)** using partition testing. Your answer should be based on case study in **Figure Q4**.

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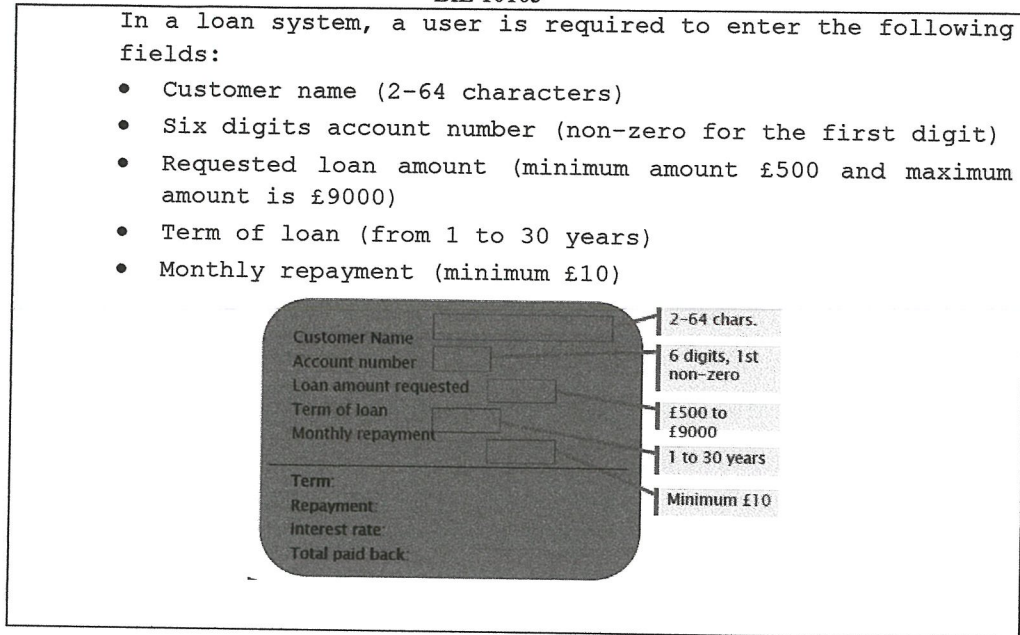


Figure Q4

- (i) Customer name (2 marks)

- (ii) Account number (2 marks)

- (iii) Loan Amount requested (2 marks)

- (iv) Term of loan (2 marks)

- (v) Monthly repayment (2 marks)

- END OF QUESTION -

