UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2016/2017

COURSE NAME	:	SOFTWARE ENGINEERING PRINCIPLES
COURSE CODE	:	BIE 10103
PROGRAMME CODE	:	BIP
EXAMINATION DATE	:	JUNE 2017
DURATION	:	2 HOURS AND 30 MINUTES
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **EIGHT (8)** PAGES

SECTION A

Instruction: Choose the BEST answer for each of the following question.

Q1 Which of the following is **NOT** a problem that contributes to difficulties in requirements elicitation?

A. Budgeting
B. Scope
C. Understanding
D. Volatility

(2 marks)

Q2 The system specification describes the _____.

A. function, performance and constraints of a computer-based system
B. implementation of each allocated system
C. element software architecture
D. time required for system simulation

(2 marks)

Q3 Which of the following is **NOT** a requirements validation technique?

A. Developing an executable model of a system and using it with end-users and customers
B. Review
C. Developing tests from the user requirements
D. Testing

(2 marks)

Q4 A property or quality of a system is also called as _____.

A. scope
B. functional requirement
C. preliminary requirement
D. non-functional requirement

(2 marks)

Q5 The use of traceability tables helps to _____.

A. debug programs following the detection of run-time errors
B. determine the performance of algorithm implementations
C. identify, control and track requirements changes
D. make corrections

(2 marks)

Q6 The output of system design is represented by _____.

A. State diagram
B. Structure chart
C. ER diagram
D. Context diagram

(2 marks)

Q7 In Design phase, which of the following is **NOT** the primary area of concern?

A. Architecture
B. Data
C. Interface
D. Program

(2 marks)

Q8 Which of the following are **TWO (2)** characteristics of a good design?

i. Exhibit strong coupling between its modules
ii. Implement all requirements in the analysis model
iii. Include test cases for all components
iv. Provide a complete picture of the software

A. i and ii
B. ii and iii
C. iii and iv
D. ii and iv

(2 marks)

Q9 Which of the following is a **CORRECT** statement regarding design pattern?

A. Design patterns are not applicable to the design of object-oriented software
B. Design patterns are best thought of as coding patterns
C. Frameworks and design patterns are the same thing as far as designers are concerned
D. One of the key problems in software reuse is the inability to find existing reusable design patterns when hundreds of candidates exist

(2 marks)

Q10 Choose the **BEST** advantages of Model–View–Controller architecture.

A. It is best suited to process control applications
B. It places complex functionality in the controller components
C. It supports diverse styles of view and controller
D. It supports of subdivision of complex layers

(2 marks)

Q11 Which of the following strategic issues needs to be addressed in a successful software testing process?

i. Conduct formal technical reviews prior to testing
ii. Specify requirements in a quantifiable manner
iii. Use independent test teams
iv. Wait till code is written prior to writing the test plan

A. i and ii
B. ii and iii
C. iii and iv
D. ii and iv

(2 marks)

Q12 Acceptance tests are normally conducted by the _____.

A. developer
B. end users
C. test team
D. systems engineers

(2 marks)

Q13 What is the normal order of activities in which traditional software testing is organized?

i. Integration testing
ii. System testing
iii. Unit testing
iv. Validation testing

A. i, iv, iii, ii
B. ii, iv, i, iii
C. iii, i, iv, ii
D. iv, ii, iii, i

(2 marks)

Q14 Which test refers to the retesting of a unit, integration and system after modification, in order to ascertain that the change has not introduced new faults?

A. Regression Test
B. Smoke Test
C. Alpha Test
D. Beta Test

(2 marks)

SECTION B

Q15 Determine whether each of the following statement is **TRUE** or **FALSE**.

(a) A stakeholder is anyone who will purchase the completed software system under development.

(2 marks)

(b) Architectural design is a creative process satisfying only functional-requirements of a system.

(2 marks)

(c) UML diagram can be used in specifying architecture of a system.

(2 marks)

(d) Class testing of object-oriented software is equivalent to unit testing.

(2 marks)

(e) The focus of validation testing is to uncover places that a user will be able to observe failure of the software to conform to its requirements.

(2 marks)

(f) Debugging is not testing, but always occurs as a consequence of testing.

(2 marks)

Q16 (a) Define requirements.

(2 marks)

(b) State **TWO (2)** types of requirements.

(2 marks)

(c) Determine whether each of the following statement is **FUNCTIONAL** or **NON-FUNCTIONAL** requirement.

(i) Response time for short queries must be less than 3 sec.

(2 marks)

(ii) In defining student record, user must be able to enter student name and be prompted for all the remaining student attributes that are needed for the student record.

(2 marks)

(iii) Student information may be searched using either the student number or student's last name.

(2 marks)

(iv) Student achievements reports shall be printed in the primary language of the student

(2 marks)

(d) Describe **FOUR (4)** different types of users of a software requirement document.

(8 marks)

(e) Draw a context diagram based on the scenario in **Figure Q16 (c).**

Woody's Supermarket, a small chain of grocery stores, is building a Web site to allow customers to place orders for groceries and other items they sell. Once the customer places a Web order, an order record is created. The order prints at a local store, and the goods are picked from the shelves by the store employees. Customers are sent an email notification that their order is ready.

Figure Q16 (c)

(10 marks)

Q17 (a) Differentiate between software verification and software validation.
(4 marks)

(b) Questions **Q17(b)(i)** and **Q17(b)(ii)** based on **Figure Q17(b)**.

> Your team members in ABC Sdn Bhd have successfully developed application software that is considered as medium to large in size. As a software tester, you are given the opportunity to choose any particular strategies to use in testing the software.

Figure Q17(b)

(i) Determine the testing strategy that you can suggest to your team member.
(2 marks)

(ii) Justify your answer in **Q17(b)(i)**.
(4 marks)

(c) Discuss the differences between White Box Testing and Black Box Testing.
(4 marks)

(d) Calculate the independent path of the program code shown in **Figure Q17(d)** using Cyclomatic Complexity.

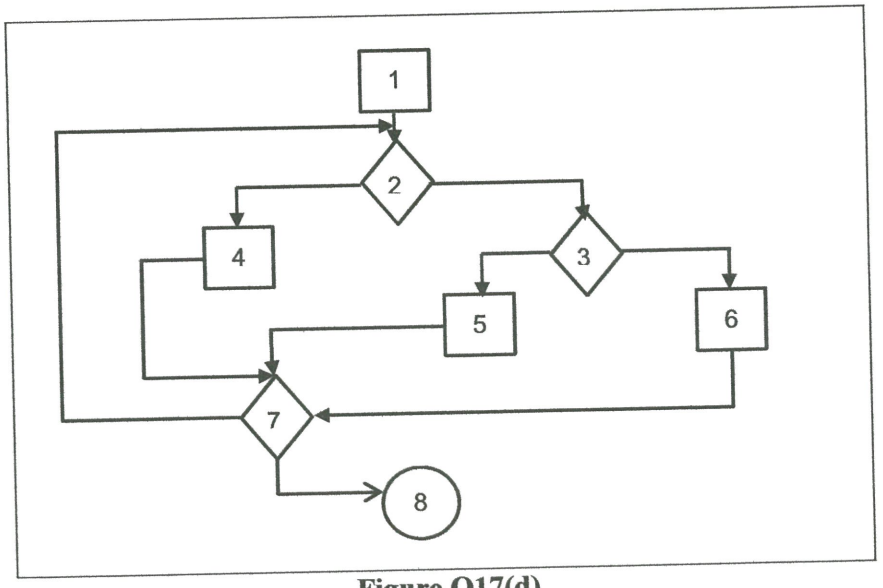

Figure Q17(d)
(6 marks)

- END OF QUESTION -