FINAL ALTERNATIVE ASSESSMENT

(COVER PAGE)

Session	:	**January 2021**
Programme	:	Diploma In Information Technology (DITN) Diploma In Computer Science (DCS)
Course	:	**ICT1106: System Analysis And Design**
Date of Examination	:	March 12, 2021 (Friday)
Time	:	12.00pm – 2.30pm Reading Time : Nil
Duration	:	2 Hours : 30 Minutes

Note: 30 minutes is added into the duration of the examination to factor in any connectivity matters and for you to scan and upload your scripts.

Special Instructions :

Section A: This section consists of **FOUR (4)** questions. Answer **ALL** the questions
Section B: This section consists of **FOUR (4)** questions. Answer **ALL** the questions.

Materials permitted :
Non-Programmable Calculator

Materials provided :
Nil

Examiner(s)	:	**Tang Yang Tze**, Thanesh Doraisamy, Nadhrah Hadi and Nor Athira Azlan
Moderator	:	Melisa Kaur Narjan Singh

*This paper consists of **4** printed pages, including the cover page*

DIPLOMA IN INFORMATION TECHNOLOGY PROGRAMME (DITN)
DIPLOMA IN COMPUTER SCIENCE PROGRAMME (DCS)
ICT1106: SYSTEM ANALYSIS AND DESIGN
FINAL ALTERNATIVE ASSESSMENT: JANUARY 2021 SESSION

SECTION A (40 marks)

Instructions: This section consists of **FOUR (4)** questions. All questions carry equal marks.

Question 1

You are appointed as the project manager to develop a new business information system. Explain the activities of the **FIVE (5)** phases of system development process in proper order.
(10 marks)

Question 2

You are required to prepare a quality assurance (QA) framework for the assessment of new information systems. Discuss **FIVE (5)** factors of system quality for this QA framework.
(10 marks)

Question 3

Compare the structured approach and object-oriented (OO) approach of system analysis and design. State **FOUR (4)** reasons to support the selection of OO approach.
(10 marks)

Question 4

You are planning the fact-finding activities for the preliminary investigation of a system request. Describe **FOUR (4)** techniques for gathering the information and facts needed. You need to select **ONE (1)** technique for further investigation. Justify your answer.
(10 marks)

SECTION B (60 Marks)

Instructions: This section consists of **FOUR (4)** questions. Answer **ALL** the questions in the answer booklet provided. All questions carry equal marks.

Question 1

You are given the description of Online Registration System operated by a private university. Convert the description of this system into a Use Case diagram.

> When register for classes, a student can use the system to select several online courses for upcoming semester. Every online class must have minimum 10 students and maximum 30 students. Student can add or drop courses before the confirmation of registration. When registration is completed, the system sends information to the billing system.

Lecturers can select courses to teach for upcoming semester. A lecturer can select several courses as long as no timetable clash. Lecturers can request for the course timetable to check time slots of online classes.

Registrars are responsible for managing the student information, lecturer information and course information. Registrars use different applications (forms) to maintain the student information, lecturer information and course information separately. Registrars are also responsible for creating the catalog of every online course.

(15 marks)

Question 2

You are given the description of a commercial banking system. Convert the description into a Class diagram. You are required to use the UML notations to represent the classes, associations and cardinalities.

A commercial bank has many branches and every branch has many tellers to process the daily transactions. The tellers can be relocated to different branches. But they can only operate at one branch at a time.

A bank has many customers and every customer can register with one branch. The customers must have an account (saving or current) to use the banking services. The customers can interact with the tellers to perform the transactions.

A customer can apply one or more loans with the commercial bank. The customers can perform transactions with their loans. A customer can apply a loan without having an account. The loan services are independent of the accounts.

(15 marks)

Question 3

You are given the projected costs and benefits of a system development project for the next five years.

Year	0	1	2	3	4	5
Cost (RM)	110,000	15,000	15,000	15,000	20.000	25,000
Benefits (RM)	0	45,000	50,000	55,000	60,000	63,000

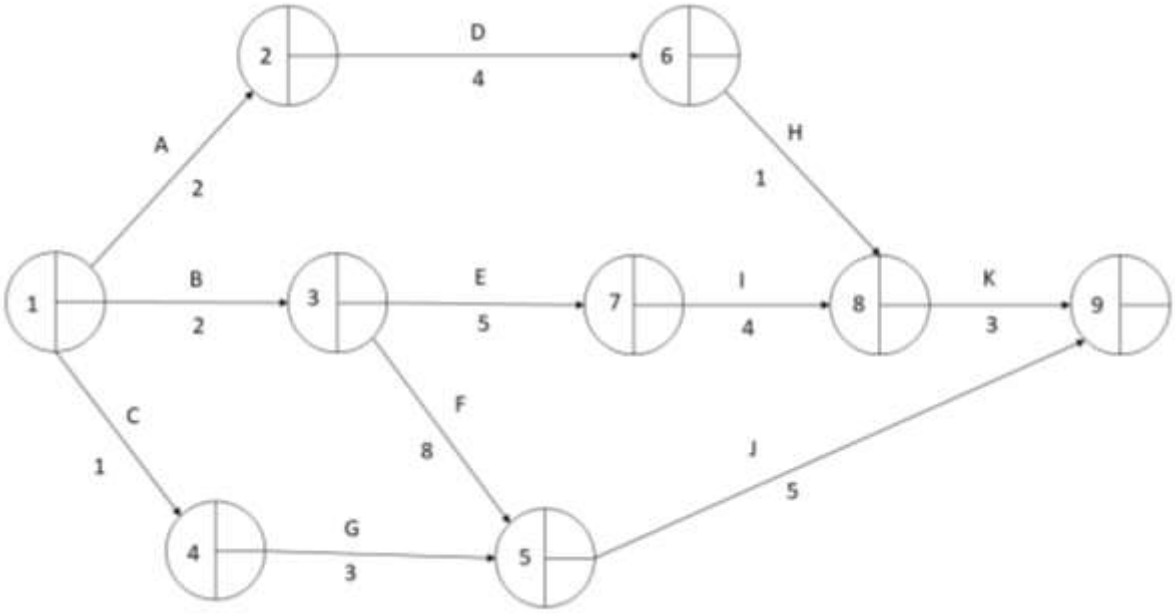
As the manager of this project, you are required to do the following:

(a) Calculate the cumulative projected costs and benefits for all the five years. (8 marks)
(b) Indicate when the payback will occur for this new system. (2 marks)
(c) Calculate the return on investment (ROI) for this system at year 5. (2 marks)
(d) Discuss the cost-benefit analysis of this system development project. (3 marks)

(Total: 15 marks)

Question 4

Consider the following software development project with the following PERT/CPM network diagram.



You are required to do the following:

(a) Indicate the Earliest Completion Time (ECT) and Latest Completion Time (LCT) for each node in the diagram. (9 marks)

(b) Give all the possible paths. (4 marks)

(c) Indicate the critical path of this project. Justify your answer. (2 marks)

(Total: 25 marks)

-- The End –

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