

CONFIDENTIAL



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

FACULTY OF COMPUTING
UTM Johor Bahru

MIDTERM TEST
SEMESTER I 2022/2023

COURSE CODE : SECP2613

COURSE NAME : SYSTEM ANALYSIS AND DESIGN

YEAR / PROGRAM : 2 SECP

TIME : 11:00 A.M. – 1:00 P.M.

DATE : 19 DECEMBER 2022

PLACE : MPK2, N28

INSTRUCTIONS TO CANDIDATES:

1. Fill in your particulars:

Name	
Passport No.	
Matric No.	
Year / Program	
Lecturer	

2. Read instructions given for each question carefully.
3. Answer **ALL** questions in this question paper.
4. This paper consists of three sections.
Section A: **10 MULTIPLE CHOICE** questions (10 Marks).
Section B: **4 STRUCTURED** questions (40 Marks).
Section C: **1 CASE STUDY** question (30 Marks).
TOTAL MARKS is **80 Marks**

THIS PAPER CONSISTS OF 8 (EIGHT) PRINTED PAGES INCLUDING THIS PAGE.

SECTION A : MULTIPLE CHOICE QUESTIONS
10 MARKS (EACH QUESTION 1 MARK)

INSTRUCTION : ANSWER ALL QUESTIONS.
Please write your answer (A/B/C/D) in the answer sheets.

Question 1

Which of the following is a **FALSE** statement regarding Upper CASE Tools?

- A. Create and modify the system design
- B. Generate computer source code
- C. Help in modelling organizational requirements and defining system boundaries
- D. Support prototyping of screen and report designs

Question 2

"Ecommerce uses the web to perform business activities."

Based on the above statement, which of these is **NOT** a benefit of using the Web?

- A. Increasing awareness of the availability of the service, product, industry, person, or group
- B. Improving the usefulness and usability of interface design
- C. Creating a local system
- D. 24-hour access for users

Question 3

"AC website is an online business which sells women's clothes. The owner of the website received many negative comments by the customers based on their experience while interacting with the website. Therefore, he decided to hire a systems analyst to improve AC ecommerce website. In a specific meeting, the owner asked his team to discuss the essential characteristics that the systems analyst should possess."

Based on the above scenario, which of these characteristics is the **MOST IMPORTANT** to a systems analyst?

- A. Programmer
- B. Project manager
- C. Problem solver
- D. Strong personal and professional ethics

Question 4

A functional requirement will describe a particular behavior of a system when certain conditions are met, for example: "Send email when a new customer signs up".

Based on the above situation, during which phase of the System Development Life Cycle (SDLC) should the analyst identify the functional requirements of the new system?

- A. Determining the stakeholders needs
- B. Analyzing system needs
- C. Designing the system
- D. Implementing and evaluating the system

Question 5

Which of the following is **NOT** a merit to be considered as resource during determining feasibility?

- A. Tactical
- B. Operational
- C. Technical
- D. Economical

Question 6

In a PERT diagram, what is the **LONGEST PATH** called?

- A. Slack time
- B. Precedent activity path
- C. Maximum path time
- D. Critical path

Question 7

Which of the following is the **MOST** related aspect to the intangible cost?

- A. It is quite impossible to estimate the exact projection amount of intangible cost for a proposed system
- B. Development and production costs are the two intangible costs need to be estimated
- C. Operational cost during system maintenance is included as intangible cost
- D. Any quantified dollar amount that can be projected during project planning

Question 8

Which of the following answers is **NOT** an interactive method during information gathering?

- A. Interview
- B. Questionnaire
- C. Observation
- D. Joint Application Design

Question 9

Which is **NOT** considered as a complex random sample?

- A. Systematic sampling
- B. Cluster sampling
- C. Purposive sampling
- D. Stratified sampling

Question 10

Which of the statements below **BEST** demonstrate the pyramid structure?

- A. Start with specific questions and end with general questions.
- B. Start with general questions and end with specific questions.
- C. Start with specific questions, move toward general questions and end with specific questions.
- D. Start with general questions, move toward specific questions and end with general questions.

SECTION B : STRUCTURED QUESTIONS
40 MARKS (EACH QUESTION 10 MARKS)

INSTRUCTION : ANSWER ALL QUESTIONS.
Please write your answer in the answer sheets.

QUESTION 1

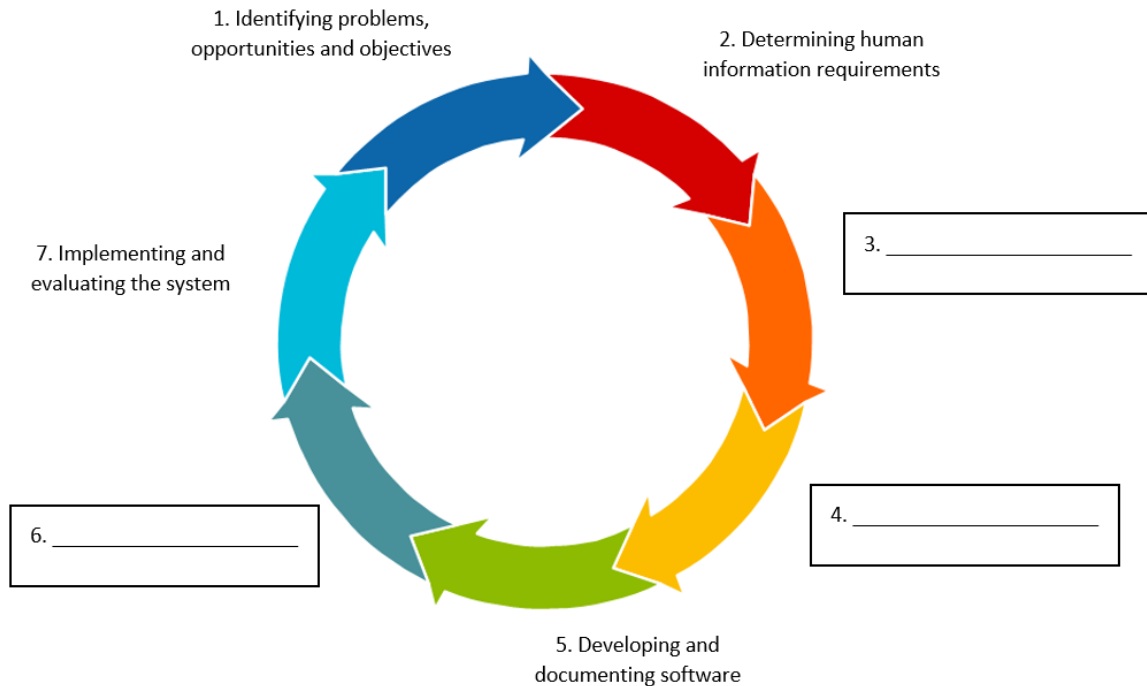


Figure 1: Phases of System Development Life Cycle (SDLC)

a) Based on Figure 1, describe the phases for number 3, 4 and 6? **(6 marks)**

b) Bobby is the one who is responsible in Phase 6 at Company A. During completing a management information system with his team, what he should do (give at least two) and why he must complete this phase (give at least two)? **(4 marks)**

QUESTION 2

UptownMY is an established shopping mall in Malaysia. In order to provide a unique shopping experience among their customers, the top management has decided to develop an e-commerce system embedded with augmented reality technology. As the system analyst, you need to conduct the economic feasibility study to ensure the successfulness of this project.

Before proceeding with the development of the system, you need to assess the economic feasibility based on the information given by the company below.

Development Costs		
Hardware		\$20,000
Software		\$10,000
Production Costs		
Supplies		\$5,000 per year
Upgrades		\$30,000 per year
Benefits		
Improve Customer Service		\$2,000 per month
Increase productivity		\$25,000 per year
Growth savings		\$10,000 per year
Assumptions		
Discount rate		0.15
Sensitivity factor (cost)		0.5
Sensitivity factor (benefit)		0.9
Annual increment (cost)		0.05
Annual increment (benefit)		0.15

- Calculate the cost-benefit estimation using the Present Value (PV) analysis for **THREE** years. **(8 Marks)**
- What is the Profitability Index (PI) value for this PV analysis? What is your recommendation based on the PI value and justify it. **(2 Marks)**

*Note: Answer the questions in **APPENDIX 1** provided at the end of the question booklet.*

QUESTION 3

A transportation company known as EZTransport wants to do an analysis of what to improve for their ineffective management of goods transportation. The company has branches and employees in 5 different cities. EZTransport has the culture of having a company retreat for three to four days for a strategic planning and team building among the multiple level of employees from all its different branches. Your team are given the task to gather information from EZTransport.

- a. List **TWO** strong reasons why you want to propose JAD in place of personal organizational interviews for EZTransport. **(2 marks)**

- b. List of **TWO** most important person that should be present in the JAD session. **(2 marks)**

During your visits to the company, you see there are lots of hardcopy of documents are available in the company's file room. You see that you there is a potential for you to understand the business in different perspective.

- c. What is the suitable unobtrusive technique for reviewing the documents. Justify to the manager of why the technique is suitable to enable you the access for the documents in the file room. **(3 marks)**

- d. List **THREE** types of documents that you need to borrow from the company's file room. **(3 marks)**

QUESTION 4

As a project manager for a system development project in your company, you have listed out all the information gathering activities as shown in table below.

Activity	Description	Predecessor	Time (Days)
A	Identify respondents	-	7
B	Prepare the survey	-	7
C	Validate the survey	A	7
D	Conduct survey	B	14
E	Analyse survey	C	35
F	Validate the finding	D	28
G	Present the finding	E, F	7
H	Prepare the report	G	7

- a. Based on above information, draw a pert diagram for the activities. **(8 marks)**

- b. Identify all path and its duration for each path found in (a). **(2 marks)**

SECTION C : CASE STUDY
30 MARKS

INSTRUCTION : ANSWER ALL QUESTIONS.
Please write your answer in the answer sheets.

Johor Putera Specialist Hospital (JPSH) is a subsidiary of Johor Healthcare Berhad (KPJHB), the largest group of private healthcare providers in Malaysia. Currently, more than 10,000 patients are registered with a JPSH. The JPSH employs a number of general practitioners (i.e. doctors, specialists) and a few receptionists.

Patients are officially registered with one doctor but can arrange appointments with any available one. These appointments may subsequently be cancelled. Some appointments result in one or more prescriptions, identifying a medicine to be taken. New patients are registered by a receptionist. When a patient is registered he/she provides his/her details such as name, date of birth, address, etc., and receives a unique patient number.

To book an appointment a patient should contact a receptionist. The patient provides his/her number (or date of birth) and the receptionist provides a list of available time slots for appointments. The appointment is booked with the patient's doctor or if the patient's doctor is not available with any available doctor. The date and time of the booked appointment are given to the patient as a confirmation.

Patients can cancel booked appointments by contacting a receptionist who will cancel appointments on behalf of patients. A patient who attends an appointment should check in first using a special terminal located in the waiting area. The patient inputs his/her number (or date of birth). The system checks the details and confirms that the patient has been checked in.

Doctors record appointment outcomes and details of prescriptions (if any) during the appointments i.e. all prescriptions issued by doctors are recorded on the patient's record. Patients who leave the area where the JPSH is located are de-registered by a receptionist.

- a. Draw the use case diagram for the JPSH system. Note that login, logout, and reporting (such as generate report) should not be considered as use cases for this scope. You must have at least FIVE (5) use cases. **(10 marks)**

*Note: Answer the questions in **APPENDIX 2** provided at the end of the question booklet.*

- b. Provide the use case description for the TWO (2) use cases by using the given template. **(10 marks)**

*Note: Answer the questions in **APPENDIX 3** provided at the end of the question booklet.*

- c. Draw the sequence diagram for the "REGISTER PATIENTS" use cases found in the JPSH system. **(10 marks)**

*Note: Answer the questions in **APPENDIX 4** provided at the end of the question booklet.*

APPENDIX 1 (CBA)

Note: $PV = \text{Payment} * (1/(1+C)^n)$

Item	Year 0	Year 1	Year 2	Year 3
Development Cost				
Total				
Production Cost				
Total				
Present Value (PV)				
Accumulated Costs				
Benefits				
Total				
Present Value (PV)				
Accumulated Benefits				
Gain or Loss				
Profitability Index (PI)				
Justification				

APPENDIX 2 (Use Case Diagram)

APPENDIX 3 (Use Case Description)

Use case name:		
Brief description:		
Actors:		
Flow of activities:	Actor	System

Use case name:		
Brief description:		
Actors:		
Flow of activities:	Actor	System

APPENDIX 4 (Sequence Diagram)