TUNKU ABDUL RAHMAN UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

FACULTY OF COMPUTING AND INFORMATION TECHNOLOGY

ACADEMIC YEAR 2023/2024

MAY/JUNE EXAMINATION

BACS2163 SOFTWARE ENGINEERING

TUESDAY, 4 JUNE 2024　　　　　　　　　　TIME: 6.30 PM – 8.30 PM (2 HOURS)

BACHELOR OF COMPUTER SCIENCE (HONOURS) IN DATA SCIENCE
BACHELOR OF COMPUTER SCIENCE (HONOURS) IN INTERACTIVE SOFTWARE TECHNOLOGY

BACHELOR OF INFORMATION TECHNOLOGY (HONOURS) IN SOFTWARE SYSTEMS DEVELOPMENT

BACHELOR OF SOFTWARE ENGINEERING (HONOURS)

Instructions to Candidates:

Answer **ALL** questions. All questions carry equal marks.

_____

This question paper consists of 4 questions on 4 printed pages.

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Question 1 *(can get from the slides)*

a) M2K is interested in creating an educational system based on the four key layers of layered software engineering technology. Describe each layer based on the system. (12 marks)

→ draw layer

b) Ram is a fresh graduate from the School of Computer Science. Recently he is hired by a software house to develop bespoke software for clients. Describe **THREE (3)** important code of ethics that Ram needs to follow as a software engineer in the software house. (9 marks)

Chapter 1 Code of ethics (Choose any 3)

c) Discuss the **TWO (2)** software development issues that today's software engineers are likely to encounter. (4 marks)

↳ Chapter 1 → key challenges of software engineering

[Total: 25 marks]

Question 2

a) TLE Solutions is a company that develops mobile applications, with a focus on banking applications. Their job was to develop an application for ABC Bank. Thus, TLE used viewpoint-oriented analysis to make sure that the application requirements were understood comprehensively.

→ Chapter 5 (missing part ?)

(i) Identify any **TWO (2)** advantages and **TWO (2)** disadvantages of using viewpoint-oriented analysis method in requirements gathering and analysis. (4 marks)

(ii) Identify any **SIX (6)** viewpoints of ABC Bank application and prepare a viewpoint hierarchy. (12 marks)

b) In a project management, a project manager would need to consider factors that could motivate employees throughout the project. Describe any **THREE (3)** levels of needs in Maslow's motivation model. (9 marks)

[Total: 25 marks]

who will be interactor of system ? bank worker, staff, customers

indirect : CEO

- Refer to Maslow' motivation model △
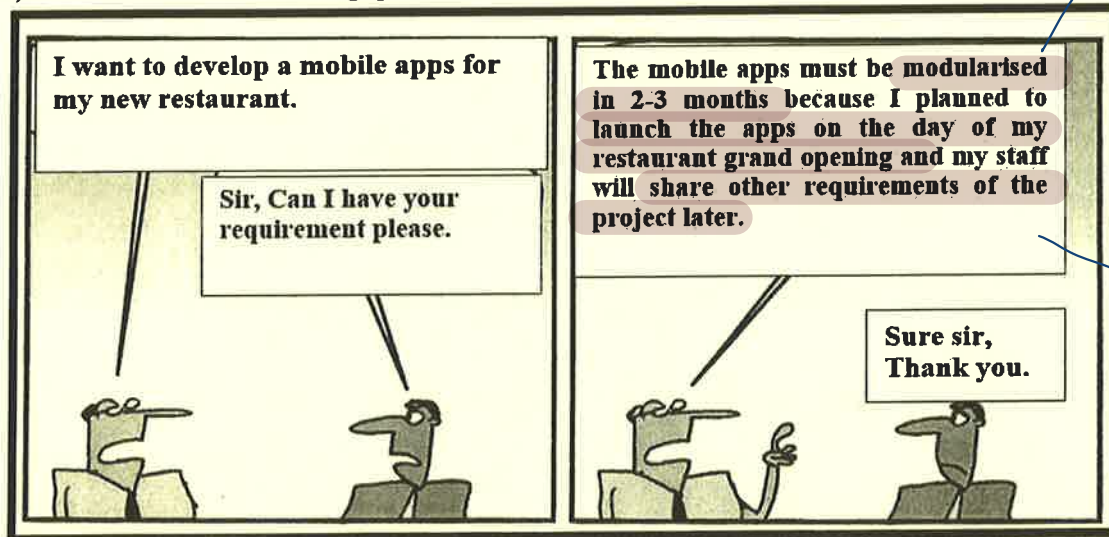

Q2 (a)(i)

Advantages
- To get a broad stakeholders coverage
- In majority interactive systems, it is natural to think of end user as a receiver of a system service
- Relatively easy to decide if some agent is not or not a valid viewpoint

Disad
- Time - consuming
- Tedious
- May be costly

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Question 3

a)   Answer the following questions based on given conversation shown in **Figure 2**.

[Handwritten annotations: requirements: - modularized in 2-3 months; - share other req later; - clear req (X prototype); - 2-3 months (✓ RAD); - Limited techniques (✓ RAD)]

I want to develop a mobile apps for my new restaurant.

Sir, Can I have your requirement please.

The mobile apps must be modularised in 2-3 months because I planned to launch the apps on the day of my restaurant grand opening and my staff will share other requirements of the project later.

Sure sir, Thank you.

Source: https://www.google.com/search+process+model
Figure 2: Conversation

[Handwritten: RAD]

(i)   Analyse the scenario above and suggest any **ONE (1)** suitable software process model to complete the above project. You may state any relevant assumptions to support your answer.   (7 marks)

[Handwritten: Draw RAD phases → explanation]

(ii)   Illustrate and explain the phases in above suggested software process model. (12 marks)

(iii)   Outline any **SIX (6)** of the Agile Software Development principles.   (6 marks)
                                                                                                        [Total: 25 marks]
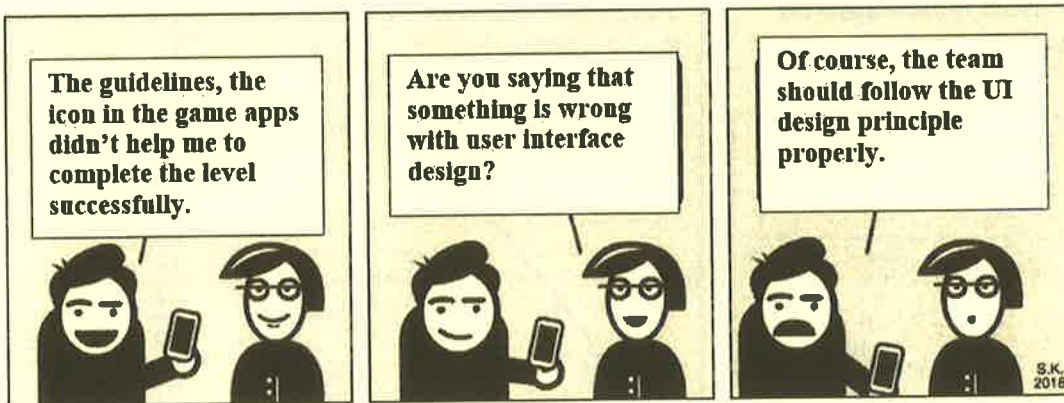
[Handwritten: list (no need explain)   refer to slides]

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UI Design Principles came from 3 Golden Rules, but
↓
[3 Golden Rules ≠ UI Design Principles]
refer to Chapter 8 slides

Question 4

a)   Based on given conversation shown in **Figure 3**, suggest and explain **SIX (6)** user interface designs principles that must be included in the mobile game application.   (12 marks)

Source: https://www.google.com/search?q=mobile+game+kids
Figure 3: Conversation

b)   TPS Company is currently researching into Bank Security Management System (BSMS) application that offers an efficient and effective bank security management system. TPS allows customer to check their individual bank locker by providing CCTV access. Customer can also view the history access log time. In the event of unauthorised access, a notification message will be sent to police station automatically and to the customer at the same time.

(i)   Identify any **THREE (3)** non-functional requirements for the Bank Security Management System (BSMS) system.   *↳ 3 main non-functional req*   (9 marks)
(not the sub points)

(ii)   Explain **TWO (2)** challenges of user requirements gathering using natural language.
          (4 marks)
          [Total: 25 marks]

- lack of clarity
- requirement confusion
- requirement amalgamation
(refer to slides)

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