UNIVERSITI
TEKNOLOGI
PETRONAS

FINAL EXAMINATION
MAY 2024 SEMESTER

COURSE	:	**TFB1073 - INFORMATION TECHNOLOGY INFRASTRUCTURE**
DATE	:	**9 AUGUST 2024 (FRIDAY)**
TIME	:	**9:00 AM - 12:00 NOON (3 HOURS)**

INSTRUCTIONS TO CANDIDATES

1. Answer **ALL** questions in the Answer Booklet.

2. Begin **EACH** answer on a new page in the Answer Booklet.

3. Indicate clearly answers that are cancelled, if any.

4. Where applicable, show clearly steps taken in arriving at the solutions and indicate **ALL** assumptions, if any.

5. **DO NOT** open this Question Booklet until instructed.

Note :

   i. There are **SIX (6)** pages in this Question Booklet including the cover page

   ii. **DOUBLE-SIDED** Question Booklet.

1. a. Describe any **FIVE (5)** layers of the Open System Interconnection (OSI) model.

[10 marks]

b. Differentiate traditional, cloud, and hybrid infrastructure.

[6 marks]

c. List any **FOUR (4)** reasons for using fibre optic cable as a transmission media.

[4 marks]

2. a. Differentiate SaaS, PaaS, and IaaS.

[6 marks]

b. List any **FOUR (4)** types of PaaS.

[4 marks]

c. You want to set up a system for which you need the resources listed in the first column of the following table. You have **FOUR (4)** options: On-premises, IaaS, PaaS and SaaS. When deciding between the above options, you need to decide how much you want to manage yourself and how much you want your Cloud Service Provider (CSP) to manage. Depending on who manages what, select "**You**" in the box managed by you and "**CSP**" in the box managed by the service provider in the following table.

Resources	On-Premises	IaaS	PaaS	SaaS
Application				
Data				
OS				
Storage				
Servers				

[10 marks]

3. Malaysia Airlines is under cost pressure from high fuel prices and reduced global air traffic. To remain competitive, the airline must find ways to keep costs down while providing a high level of customer service. The airline has a 20-year-old data centre. Management needed to decide whether to replace the on-site data centre with newer technology or outsource it.

a. Select **FOUR (4)** types of cloud computing services that can be used by the airline.

[4 marks]

b. Explain any **FOUR (4)** aspects that should be considered by the Airline management before deciding to outsource it.

[16 marks]

4. a. Describe **FIVE (5)** primary functions of an Operating System (OS).

[10 marks]

b. Differentiate between monolithic and microservice architectures.

[2 marks]

c. List **FOUR (4)** advantages of microservice architecture and **FOUR (4)** disadvantages of monolithic architecture.

[8 marks]

5. a. Explain the ACID properties of database transactions with suitable examples.

[8 marks]

b. Differentiate SQL and NoSQL databases.

[4 marks]

c. Describe the graph database and list its **THREE (3)** advantages.

[5 marks]

d. Explain Augmented Data Management (ADM).

[3 marks]

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