SC025
Computer Science
Semester II
Session 2024/2025
2 hours

SC025
Sains Komputer
Semester I I
Sesi 2024/2025
2 jam

Name	Matric No											Class

(Sila isi maklumat dengan jelas dan lengkap)

KOLEJ MATRIKULASI LABUAN
LABUAN MATRICULATION COLLEGE

PRA-PEPERIKSAAN SEMESTER PROGRAM MATRIKULASI
MATRICULATION PROGRAMME TRIAL EXAMINATION

SAINS KOMPUTER
(SET 1)
2 jam

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU.
DO NOT OPEN THIS QUESTION PAPER UNTIL YOU ARE TOLD TO DO SO.

Untuk Kegunaan Pemeriksa		
No.	Mark	
	Pemeriksa	KP / KKP
1 (6 M)		
2 (10 M)		
3 (20 M)		
4 (8M)		
5 (11 M)		
6 (15 M)		
70 M		

Kertas soalan ini mengandungi 7 halaman bercetak
This question paper consist of 7 printed pages

2) Identify Input-Process-Output (IPO) for the scenarios:
   a) EcoCare wants to develop a system to calculate the monthly water bill. The system will prompt users for the number of liters used. The rate is RM0.002 per liter.

[4 marks]

INPUT	
PROCESS	
OUTPUT	

b) The Ministry of Health wants to build a system that records hourly air quality index (AQI) over 24 hours. If the AQI exceeds 100, a warning is issued; otherwise, it displays "Safe".

[6 marks]

INPUT	
PROCESS	
OUTPUT	

3) Algorithms help solve problems efficiently.

a) AgroSmart monitors livestock feeding that has different feed requirements for each type of animal. The amount of feed required per animal depends on the type of animal. The feed requirements are as follows:

Animal Code	Animal	Feed per Animal (kg)
C1	Cow	25
G1	Goat	5
S1	Sheep	8

Write a pseudocode to calculate and display the total feed required. The pseudocode should ask the user for the type of animal and the number of animals of that type. Based on the animal type entered, the program should calculate the total feed required and display it. [6 marks]

b) e-Mart applies discounts based on purchase value and customer category:

Total Purchase (RM)	Customer Type	Discount (%)
> 300	Premium	25%
> 300	Regular	10%
≤ 300	Premium	15%
≤ 300	Regular	No discount

Design a flowchart to calculate and display discount and final payment. [14 marks]

4) a) Determine the output of the following Python code:

i)
```
books = 12 + 5 * 2
print(books)
avg = books / 4.0
print(avg)
```

[2 marks]

ii) Convert this for loop to a while loop :

```
for n in range(10, 0, -2):
   print("Count:", n)
```

[2 marks]

b) Write Python statements for the following algebraic equations :

i) $z = (3a^2 + 4b) / (2c)$ [2 marks]

ii) $v = sqrt(u^2 + 2as)$ [2 marks]

5) a) A bakery records revenue for 7 days and gives 10% bonus for days with > RM500 sales. Write a Python program segment to calculate and display bonus.

[6 marks]

b) A cinema uses the following ticket pricing :

Code	Category	Price (RM)
A01	Adult	18.00
A02	Teenager	12.00
A03	Child	8.00

The program reads code and quantity, adds 6% entertainment tax, and displays total. Write a Python program for this question.

[5 marks]