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MALAYSIA ITALY DESIGN INSTITUTE**

**FINAL EXAMINATION
FEBRUARY 2026 SEMESTER**

COURSE CODE : PDP01104
COURSE NAME : INTRODUCTION TO COMPUTER TECHNOLOGY 2
PROGRAMME NAME : FOUNDATION
DATE : 22 JUNE 2026
TIME : 9:00 AM – 11:00 AM
DURATION : 2 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please **CAREFULLY** read the instructions given in the question paper.
2. This question paper has information printed on both sides of the paper.
3. This question paper consists of **TWO (2)** sections; Section A and Section B.
4. Answer **ALL** questions in Section A and Section B.
5. Please write your answers on the OMR answer script and answer booklet provided.
6. Answer all questions in English language **ONLY**.

THERE ARE 11 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 40 marks)**INSTRUCTION: Answer ALL questions.****Please use the objective answer sheet provided.**

1. What is the standard language for web page structure?
 - A. Python
 - B. JavaScript
 - C. HTML
 - D. XML

2. What is the primary function of markup languages?
 - A. Executing complex calculations.
 - B. Structuring and presenting content.
 - C. Creating interactive games.
 - D. Managing databases.

3. Which language is NOT commonly used for scripting?
 - A. Python
 - B. JavaScript
 - C. C++
 - D. Bash

4. What is the correct syntax to declare a variable in C++?
 - A. variable name = data type;
 - B. data type variable name;
 - C. variable name data type = value;
 - D. data type = variable name;

5. What does the `cout` object do?
 - A. Reads input from the user.
 - B. Displays output to the console.
 - C. Performs mathematical calculations.
 - D. Declares a new variable.

6. Which header file is necessary for input/output operations?
- A. <iostream>
 - B. <stdio.h>
 - C. <string>
 - D. <math.h>
7. What is the purpose of the `main()` function ?
- A. It is optional and only used for complex programs.
 - B. It defines a custom data type.
 - C. It is the entry point of the program where execution begins.
 - D. It is used to create loops and conditional statements.
8. Which of the following is NOT a common Third Generation Language?
- A. FORTRAN
 - B. COBOL
 - C. Assembly Language
 - D. C++
9. In the software development life cycle (SDLC), which stage involves gathering requirements from stakeholders?
- A. Design
 - B. Development
 - C. Analysis
 - D. Implementation
10. What is the purpose of pseudocode in programming?
- A. To execute a program directly.
 - B. To represent a program's logic in a human-readable form.
 - C. To define the user interface of a program.
 - D. To create complex graphics and animations.
11. What does a parallelogram flowchart symbol represent?
- A. Start or End of the program
 - B. Input or Output operations
 - C. A decision point
 - D. A processing step

12. What does a repetition (looping) structure in a flowchart indicate?
- A. The program has ended.
 - B. The program is about to start.
 - C. The program is displaying a result to the user.
 - D. A block of code will be executed repeatedly based on a condition.
13. What is a variable in programming?
- A. A fixed value that cannot be changed.
 - B. A complex mathematical equation.
 - C. A storage location with a symbolic name that can hold a value.
 - D. A graphical element in a flowchart.
14. Which of the following is NOT a valid way to write a numeric literal in C++?
- A. 1000
 - B. 3.14
 - C. 2,000,000
 - D. -5
15. What is the difference between the int and double data types?
- A. int stores integers (whole numbers), while double stores floating-point numbers (with decimals).
 - B. int is used for storing text, while double is used for storing numbers.
 - C. int is a newer data type, while double is an older, outdated type.
 - D. There is no difference; they are interchangeable.
16. What does the following statement do?

```
int cans_per_pack = 10;
```

- A. It calculates the number of cans in a pack.
- B. It defines a variable named cans_per_pack and sets its initial value to 10.
- C. It prints the value of cans_per_pack to the console.
- D. It is an invalid statement.

17. Which of the following is a valid arithmetic operator in ?

- A. * (multiplication)
- B. ^ (exponent)
- C. = (assignment)
- D. != (not equal to)

18. What is the purpose of the % operator in ?

- A. To calculate the percentage of a number.
- B. To compute the remainder of an integer division.
- C. To increment a variable by 1.
- D. To concatenate two strings.

19. What is the output of the following code snippet?

```
int result = 10 / 3;  
cout << result;
```

- A. 2.33333
- B. 2.5
- C. 2
- D. 3

20. What does the `cin >> variable;` statement do ?

- A. It prints the value of the variable to the console.
- B. It reads input from the user and stores it in the variable.
- C. It defines a new variable with a specific data type.
- D. It clears the value of the variable.

21. What does an operator represent in C++?

- A. A specific task or operation.
- B. A variable that stores data.
- C. A comment in the code.
- D. A data type, such as int or double.

22. Which operator calculates the remainder of an integer division?
- A. /
 - B. *
 - C. +
 - D. %
23. What is the difference between the prefix and postfix versions of the increment (++) operator?
- A. They have the same effect; there is no difference.
 - B. Prefix increments the operand by 2, while postfix increments by 1.
 - C. Prefix is used for integers, while postfix is used for floating-point numbers.
 - D. Prefix increments the operand before its value is used, while postfix increments after.
24. Which of the following is NOT a relational operator?.
- A. < (less than)
 - B. = (assignment)
 - C. == (equal to)
 - D. != (not equal to)
25. If $x = 5$ and $y = 10$, what is the value of the expression $x < 10 \ \&\& \ y > 5$?
- A. True
 - B. False
 - C. Error
 - D. No output
26. What does the logical NOT (!) operator do?
- A. It has no effect on the expression.
 - B. It performs an arithmetic negation (e.g., changes 5 to -5).
 - C. It combines two relational expressions with an AND condition.
 - D. It converts a true value to false and a false value to true.

27. Which of the following is an example of an arithmetic expression ?
- A. $x = 5$
 - B. $y > 10$
 - C. $z + 2 * 15$
 - D. $a == b$
28. In an assignment statement like $x = 5$, what does the $=$ symbol represent?
- A. A comparison operator, checking if x is equal to 5.
 - B. An arithmetic operator, adding 5 to the value of x .
 - C. An assignment operator, assigning the value 5 to the variable x .
 - D. A logical operator, combining two expressions.
29. Which of the following is NOT a type of programming error?
- A. Syntax error
 - B. Semantic error
 - C. Logical error
 - D. Hardware error
30. The `cin`, `cout` are ____.
- A. Library functions
 - B. structures
 - C. Pointers
 - D. Objects

Answer: D

31. What type of error is dividing a number by zero?
- A. Syntax error
 - B. Semantic error
 - C. Logical error
 - D. Runtime error
32. What is a common cause of a logical error?
- A. Incorrect use of operators in an expression.
 - B. Misspelling a keyword in the code.
 - C. Accessing an invalid memory location.
 - D. Using the wrong data type for a variable.

33. Which error category is often the most difficult to debug?
- A. Syntax errors
 - B. Semantic errors
 - C. Logical errors
 - D. Runtime errors
34. What is the primary purpose of conditional statements?
- A. To create loops that repeat a block of code.
 - B. To execute a set of statements based on a condition.
 - C. To define variables with different data types.
 - D. To display output to the console.
35. Which of the following is NOT a type of conditional statement?
- A. if
 - B. if-else
 - C. switch
 - D. for
36. In an if statement, what happens if the condition is false?
- A. The code inside the if block is executed.
 - B. The code inside the if block is skipped.
 - C. The program terminates with an error.
 - D. The program enters an infinite loop.
37. What is the purpose of the else keyword in an if-else statement?
- A. To provide an alternative set of statements to execute if the if condition is false.
 - B. To mark the end of the if block.
 - C. To introduce a loop that repeats a block of code.
 - D. To define a constant variable.
38. Which conditional statement is best suited for situations with multiple choices?
- A. if
 - B. if-else
 - C. switch
 - D. For

39. Which of the following is a valid example of a Boolean expression in an if statement?
- A. $x + 5$
 - B. $y = 10$
 - C. $\text{count} \leq \text{limit}$
 - D. name
40. What is a nested loop?
- A. A loop that contains another loop inside it.
 - B. A loop that runs infinitely.
 - C. A loop that does not have any statements in its body.
 - D. A loop that uses the goto statement.

SECTION B (Total: 60 marks)**INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.****Question 1**

- a. List and explain the three main types of loops . Provide a example each type of loop.

(15 Marks)

- b. Describe the purpose and syntax of the switch statement.

(5 Marks)

Question 2

You are tasked with writing a program for the University Bookstore to calculate the student discount during the "Back to School" promotion. The discount rate is based on the total purchase amount made by the student.

Program Requirements:

Input: The program must accept two inputs from the user:

- I. The student's name (e.g., `studentName`).
- II. Their total purchase amount for the books (e.g., `totalPurchase`).

Decision Logic: It must determine a **discount rate** based on the `totalPurchase` amount:

Total Purchase Amount	Discount Rate
RM 300 or more	15%
RM 150 to RM 299.99	10%
RM 50 to RM 149.99	5%
Less than RM 50	0%

Calculation: It must then perform the following calculation:

discountAmount = totalPurchase * discountRate

Output: The program must display the **studentName**, the **totalPurchase**, the **discountRate** applied (e.g., 10%), and the total **discountAmount**.

a. Create pseudocode for the program.

Create the pseudocode for the "University Bookstore Discount" program. Your pseudocode must clearly show the logic for getting both inputs, determining the correct discount rate from the 4 tiers, performing the calculation, and printing all required outputs.

(10 marks)

b. Draw a flowchart to visualize the program flow.

Draw a complete flowchart to visualize the program flow of the "University Bookstore Discount," ensuring it details the full decision-making process for assigning the discountRate.

(10 marks)

c. Write the C++ code for the program.

Write the complete C++ code for the "University Bookstore Discount" program. This program must take the student's name and total purchase amount as input, accurately calculate the correct discount based on the tiered logic, and then display a full summary (including the student's name, total purchase, discount rate applied, and the final discount amount).

(20 marks)

END OF EXAMINATION PAPER