Generated Question Paper

Question 1

• Question 1: Variable Declaration and Initialization (10 marks)

• Instructions:** Read the question carefully and answer in the given space. Use the international system of units (SI) and standard mathematical notation wherever applicable. You are required to answer any three sub-parts of this question.

• Question 1.1 (3 marks):
Define the terms "variable declaration" and "initialization" in the context of a C programming language. Explain the significance of each step in variable declaration and initialization.

• Question 1.2 (4 marks):
Write the general structure for declaring and initializing an integer variable in C. Explain the purpose of each part of the structure.

• Question 1.3 (3 marks):
Given the following code segment:
```c
int x;
x = 5;
```
Explain the difference between the two statements and how they contribute to the initialization of the variable `x`.

• Mark Allocation:

• Question 1.1: 3 marks

• Question 1.2: 4 marks

• Question 1.3: 3 marks

• Total Marks for Question 1:** 10 marks

Question 2

• Computer Science Tenth, 2024

• Group - II

• PART - 2

• Short Answer Type Questions (40 Marks)

• Question 2 of 10

• Marks: 8

• Time: 15 minutes

• Instructions:** Attempt any **FOUR** (4) questions from the following options.

• Choose any **FOUR** questions from the following options:
i) What is the purpose of the `getch()` function in C programming language?
ii) Explain the concept of function call in C programming language with an example.

iii) Define a nested loop and provide an example of its usage.
iv) Write a program in C to print the first 10 terms of the Fibonacci series using a `for` loop.

• Short Answers:
Choose any FOUR (4) questions from the above options. Each question carries **4 marks**. Attempt all the questions to the best of your abilities.

• Answer any FOUR (4) questions

• Note:** You may use a maximum of two A4 size sheets for rough work.

• Submission:
Submit your answer sheet with your name, roll number, and class clearly written on it.

• Evaluation:
The answers will be evaluated based on the clarity, accuracy, and completeness of the response.

Question 3

• Question 3 of 10

• Part II: Programming Fundamentals

• Question 3

• Marks: 20

• Time: 15 minutes

• Instructions:
Write short answers to the following questions. Each answer should not exceed 50 words.

• (a)** (4 marks)
Explain the concept of a "function call" in C programming. Provide an example to illustrate how a function is called.

• (b)** (4 marks)
Describe the difference between a "variable" and an "array" in C programming. Provide an example to demonstrate the usage of both.

• (c)** (4 marks)
Explain the concept of "conditional logic" in C programming. Provide an example of using if-else statements to make a decision.

• (d)** (8 marks)
Write a C program to print the first 10 even numbers from 1 to 20.

• Note:

• You need to write a complete C program to print the first 10 even numbers.

• Use a loop to iterate from 1 to 20 and print only the even numbers.

• Use a variable to store the even numbers.

• Use a loop counter to control the number of even numbers printed.

Question 4

• Computer Science Exam Question 4 of 10

• Section: Programming Fundamentals

• Question Number: Q4

• Marks: 10

• Instructions:
1. Read the question carefully and answer each part accordingly.
2. Use the knowledge and concepts learned from the C programming language.
3. Show all workings and calculations for each part.
4. Write your answers clearly and concisely.

• Question:
Write a C program to simulate a simple bank account system. The program should perform the following operations:

• Create an account with a given account number and initial balance.

• Deposit money into the account.

• Withdraw money from the account.

• Display the current balance of the account.
The program should use a structure to represent the account details and a function to perform the operations. Use a loop to allow the user to perform multiple transactions.

• Sub-parts:
1. **Part (a)**: Define the structure to represent the account details and a function to create an account. (2 marks)
2. **Part (b)**: Write the main program to perform the operations: deposit, withdraw, and display balance. (4 marks)
3. **Part (c)**: Use a loop to allow the user to perform multiple transactions and display the final balance. (4 marks)

• Mark Allocation:

• Part (a): 2 marks

• Part (b): 4 marks

• Part (c): 4 marks

• Submission Requirements:

• Write your program in a single C file (e.g., `bank_account.c`).

• Use clear and concise comments to explain your code.

• Use proper indentation and spacing to make your code readable.

• Grading Criteria:

• Correctness of the program (40%)

• Code organization and structure (20%)

• Use of comments and documentation (10%)

• Readability and conciseness of the code (30%)

• Note:** Please ensure that your program compiles and runs correctly on the given platform.

Question 5

• Question 5 of 10

• Marks: 20

• Time: 20 minutes

• Instructions:
Write a C program to simulate a simple banking system that allows users to create accounts, deposit and withdraw money. The program should have the following features:
1. Allow users to create a new account with a unique account number, account holder's name, and initial deposit amount.
2. Display the account balance after each transaction.
3. Validate user input to prevent invalid operations (e.g., withdrawing more than the available balance).
4. Provide an option to exit the program.

• Requirements:

• Use a struct to represent the account information.

• Implement functions to create a new account, deposit, withdraw, display account information, and exit the program.

• Use a loop to repeatedly ask the user for input until they choose to exit.

• Note:** You can assume that the user will enter valid input (e.g., positive numbers for deposits and withdrawals).

• Submission:

• Write the complete C program code on a separate sheet of paper.

• Make sure your code is well-structured, readable, and includes comments to explain the logic.

• Mark Allocation:

• Correctness (8 marks): Does the program meet all the requirements and features specified?

• Code quality (6 marks): Is the code well-structured, readable, and efficient?

• Comments and documentation (4 marks): Are the comments clear and concise, explaining the logic and purpose of each section?

• Good luck!

Question 6

• Question 6 of 10

• Marks: 20

• Part A: Short Answer Questions (8 marks)

• Part B: Programming Question (12 marks)

• Time: 30 minutes

• Instructions:

• Answer all questions in the answer booklet provided.

• Show your working and calculations for all programming questions.

• Use the space provided for each question to write your answer.

• Do not start a new line in the middle of an answer. If you need more space, use the back of the page.

• Part A: Short Answer Questions (8 marks)
1. **Define the difference between a pointer and a variable in C programming. (2 marks)**
2. **Explain the concept of scope in C programming. (2 marks)**
3. **What is the purpose of the `include` directive in C programming? (2 marks)**
4. **Describe the difference between a `for` loop and a `while` loop in C programming. (2 marks)**

• Part B: Programming Question (12 marks)

• Question:
Write a C program that takes two integers as input from the user and swaps their values using a function. The function should have a parameter to store the swapped values. The program should also include a loop to print the swapped values 10 times.

• Marks Allocation:

• Function definition and implementation (4 marks)

• Function call and argument passing (2 marks)

• Loop to print swapped values (2 marks)

• Correctness and functionality of the program (4 marks)
Note: You can use any programming style and syntax, but make sure to follow the instructions and do not exceed the allocated time.

Question 7

• Question 7 of 10

• Question:** Write a program in C to simulate a simple banking system. The program should have the following features:

• The program should start with a balance of $1000.

• The user should be able to deposit money into their account.

• The user should be able to withdraw money from their account.

• The program should display the current balance after each transaction.

• The program should check if the user has sufficient funds before allowing a withdrawal.

• The program should exit when the user chooses to quit.

• Instructions:
1. Write the program in C language.
2. Use a loop to allow the user to perform multiple transactions.
3. Use conditional statements to check the user's input and perform the corresponding action.
4. Use variables to store the balance and user's choice.
5. Use the correct format specifier to display the balance.

• Mark Allocation:

• Correct program structure and syntax (10 marks)

• Correct use of loop and conditional statements (15 marks)

• Correct handling of user input and transactions (20 marks)

• Correct balance update and display (15 marks)

• Correct program termination (10 marks)

• Total (70 marks)

• Note:

• The program should be written in a clear and legible format.

• Comments should be included to explain the program's logic and functionality.

• The program should be compiled and run to ensure it works correctly before submission.

• Submission:

• Write the program on a separate sheet of paper.

• Include your name, roll number, and class on the top of the page.

• Submit the program to the invigilator before the end of the exam.

Question 8

• Question 8 of 10

• Computer Science

• Tenth, 2024 Group - II

• Essay Type Marks: 40

• Short answers to any FOUR (4) questions:

• Choose any four questions from the following options and answer them in 50-100 words each.

• Part-A
1. (a) Explain the concept of a function in C programming language. What is the purpose of a function declaration?
(b) Write the syntax of a function declaration in C.
2. (a) What is the difference between a single character and a character array in C?
(b) Write a program to print the ASCII values of characters from 'A' to 'Z'.
3. (a) Explain the concept of a string in C programming language. How is it different from a character array?
(b) Write a program to print the string "Hello, World!" using a function.
4. (a) What is the purpose of the 'switch' statement in C?
(b) Write a program to print the day of the week based on the user input.

• Part-B
1. Write a program to calculate the area and perimeter of a rectangle.
2. Write a program to print the first 10 prime numbers.
3. Write a program to find the maximum and minimum values in an array.
4. Write a program to find the factorial of a number using recursion.

• Note:** The questions are designed to test your understanding of the concepts and your ability to apply them in practical situations. Make sure to follow the instructions carefully and allocate your time wisely. Good luck!

Question 9

• COMPUTER SCIENCE EXAMINATION

• PART - II

• Programming in C-Language

• Question 9 of 10 (40 marks)

• Short Answers (Write short answers to any FOUR questions: 20 marks)

• Extended Answer (Write a short essay on ONE question: 20 marks)

• Instructions:

• Answer all short answer questions in not more than 50 words each.

• Answer the extended answer question in not more than 150 words.

• Use diagrams and flowcharts where necessary.

• Show all calculations and reasoning.

• Short Answers (Choose any FOUR questions and answer them):
1. **Define a function prototype.** (5 marks)
2. **What is the difference between a variable and an array?** (5 marks)
3. **Explain the concept of recursion in programming.** (5 marks)
4. **Describe the structure of a while loop in C-Language.** (5 marks)

• Extended Answer:
1. **Write a C-Language program to calculate the sum of all even numbers between 1 and 100.** (20 marks)
* The program should use a loop to iterate over the numbers and a conditional statement to check if a number is even.
* The program should print the sum of all even numbers at the end.

• Note:** The marks allocated to each question are indicative and may be adjusted based on the actual exam requirements.
This question is designed to test the student's understanding of various programming concepts in C-Language, including functions, variables, arrays, loops, and conditional statements. The short answer questions are designed to assess the student's knowledge of specific topics, while the extended answer question requires the student to apply their knowledge to write a complete program that meets the requirements.

Question 10

• Question 10 of 10: Programming Fundamentals (40 marks)

• Part A: Short Answer Questions (20 marks)
Choose any 4 questions from the following and answer them in 50-100 words each.
1. **Define the concept of data typing and its significance in programming languages.** (5 marks)
2. **Explain the differences between a while loop and a for loop in C programming.** (5 marks)
3. **Describe the role of the scanf() function in C programming.** (5 marks)
4. **Define the concept of a pointer in C programming and provide an example of its usage.** (5 marks)

• Part B: Programming Question (20 marks)
Write a C program that simulates a simple banking system. The program should have the following features:

• Allow users to create an account by entering their name and initial balance.

• Display the account balance when the user requests it.

• Allow users to deposit money into their account.

• Allow users to withdraw money from their account (if sufficient balance exists).

• Display a message when the user's balance falls below zero.
The program should use functions to perform the above tasks. Use a loop to continuously prompt the user for input until they choose to exit the program.

• Note:** The program should be well-structured, readable, and include necessary error handling.

• Mark Allocation:

• Part A: Short Answer Questions (each question is worth 5 marks)

• Part B: Programming Question (20 marks)

• Submission Guidelines:

• Write your program on a separate sheet of paper or in a new file.

• Ensure your program is well-structured and readable.

• Provide clear comments explaining the logic behind your program.

• Time:** 1 hour and 30 minutes (for both parts)

• Instructions:** Read the question carefully and answer all parts of the question. Use a calculator or any other necessary resources to assist you. Do not copy or plagiarize from any source. Show your work and explanations where necessary.