

**B022313(022)**

**B.Tech. (Third Semester) Examination**

**Nov.-Dec. 2020**

**(AICTE Scheme)**

**(Computer Science and Engg. Branch)**

**PRINCIPLES of PROGRAMMING LANGUAGES**

***Time Allowed : Three hours***

***Maximum Marks : 100***

***Minimum Pass Marks : 35***

***Note : Attempt all questions. Part (a) is of 4 marks and Part (b), (c) and (d) are of 8 marks. Part (a) is compulsory and attempt any two parts from (b), (c) and (d). Assume any missing data. Use diagrams wherever required.***

**1. (a) True / False?**

**(i) Full form of DFD is Data Flow Diagram.**

**(ii) The flowchart depicts flow of control in program modules.**

- (iii) We should try to minimize coupling.
  - (iv) We should try to maximize cohesion.
- (b) Explain :
- (i) Operational Acceptance Testing
  - (ii) Alpha Testing
  - (iii) Beta Testing
  - (iv) Software Maintenance phase
- (c) Explain following points about DFD :
- (i) Definition, purpose and symbols used.
  - (ii) Purpose of Level-0 and Level-1 DFD
- (d) Explain about :
- (i) Abstraction
  - (ii) Refinement
  - (iii) Modularity
  - (iv) Software Architecture
2. (a) True / False?
- (i) Relative address is a memory address that represents some distance from a starting point or the base address.

- (ii) The variable names, constants and instruction labels are the basic elements of the symbolic address space.
  - (iii) In late binding the calling of the function gets bound with the definition of the function at compile time.
  - (iv) In early binding the binding of the function call to the respective definition during runtime.
- (b) Answer the following :
- (i) What is the need of Assembler?
  - (ii) Compare Compiler and Interpreter.
- (c) Answer the following :
- (i) Draw that diagram of Water fall model, and Prototyping model.
  - (ii) Compare Water fall model and Prototyping model.
- (d) Answer the following :
- (i) Draw the Scrum Development Model.
  - (ii) Explain the components of Scrum Development Model.

3. (a) True / False?
- (i) Java is an example of Imperative programming language.
  - (ii) Java is an example of Functional programming language.
  - (iii) LISP is an example of Imperative programming language.
  - (iv) LISP is an example of Functional programming language.
- (b) Answer the following :
- (i) Explain Imperative programming
  - (ii) Explain Functional programming
- (c) Explain following about LISP :
- (i) Executor
  - (ii) Atoms
  - (iii) Lists
  - (iv) Strings
- (d) Explain following about PROLOG :
- (i) Variable and Atom

- (ii) Clause or rule
4. (a) True / False?
- (i) C++ is an object oriented programming language.
  - (ii) C++ is a procedural programming language.
  - (iii) Objects are created using class.
  - (iv) Objects are created using functions.
- (b) Answer the following :
- (i) What are Static members in a class?
  - (ii) Write a program in C++ to demonstrate the use of static members in a class.
- (c) Answer the following :
- (i) What are Nested class?
  - (ii) Write a program to demonstrate the use of Nested class.
- (d) Answer the following :
- (i) Compare New and Delete operators.
  - (ii) Write a program in C++ to demonstrate the use of New and Delete operators.

5. (a) True / False?

- (i) Try-Catch are part of exception handling in C++.
- (ii) Throw-Try-Catch are part of exception handling in C++.
- (iii) During inheritance un-named instance of child class in gets created in parent class instance.
- (iv) Templates implement runtime polymorphism.

(b) Answer the following :

- (i) Explain function templates with code example in C++.
- (ii) Explain class templates with code example in C++.

(c) Answer the following :

- (i) Explain Abstract class in C++.
- (ii) Write a program to create an Abstract class in C++.

(d) Answer the following :

- (i) Explain Hybrid inheritance in C++.
- (ii) Write a program in C++ to demonstrate Hybrid inheritance.