

Total No. of Questions : 7]

SEAT No. :

P3863

[Total No. of Pages : 2

[5640]- 5001

M.Sc. (Computer Science) (Semester - I)

CS UT - 111 : PARADIGM OF PROGRAMMING LANGUAGES

(2019 Pattern)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates :-

- 1) Question 1 is compulsory.
- 2) Solve any five questions from question 2 to 7.
- 3) Questions 2 to 7 carry equal marks.

Q1) Attempt any five of the following :

[5 × 2 = 10]

- a) What is the difference between compiler and preprocessor.
- b) Define fixed stack-dynamic and stack-dynamic.
- c) What is iterator? Which two programming languages that supports iterator.
- d) What is display? How it differ from a static chain?
- e) What is calling sequence and prologue?
- f) Explain the difference between val and var. With example in scala.

Q2) Attempt the following.

- a) i) Explain the types of union with example. What are the design issues of union? [5]
- ii) Name any two languages of category : [2]
Functional and Von-Neumann.
- b) What is Semaphore? What are the dis-advantages of semaphore in cooperation synchronization and competition synchronization. [5]

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Q3) Attempt the following :

- a) i) What is dangling reference? Explain Tombstones and Locks and keys approach. [5]
- ii) Define l-value and r-value. [2]
- b) Explain the connection between dynamic method binding and polymorphism in C++. [5]

Q4) Attempt the following.

- a) i) What is a subprogram? Discuss the characteristics of subprogram. [5]
- ii) What is array slice? Explain with example. [2]
- b) Write a scala program to read a string and count number of vowels and consonants. Convert all vowels to uppercase. [5]

Q5) Attempt the following.

- a) i) Write a scala program to define a class student (Roll no, Name, Percentage). Write methods accept and display. Show the details of topper student. [5]
- ii) What is lazy evaluation and strict function? [2]
- b) Define abstract class. Illustrate with suitable example in C++. [5]

Q6) Attempt the following.

- a) i) List the types of inheritance. Explain replicated multiple inheritance. [5]
- ii) What is cactus stack? [2]
- b) Write a scala program to merge two sets and calculate average of prime numbers present in the set. [5]

Q7) Attempt any two of the following.

- a) Write a short note on Association list and central reference table. [6]
- b) Describe a short circuited evaluation. Explain its use and implementation with example. [6]
- c) State six different syntactic constructs commonly used to create new threads of control in a concurrent program. Explain any two. [6]

