BACHELOR OF SCIENCE EXAMINATION, 2024

COMPUTER SCIENCE (MINOR)

(1st Year, 2nd Semester)

[Computer Science I (Programming Languages)]

Time : 1½ *Hours* *Full Marks* : 30

Symbols have usual meanings, if not mentioned otherwise.
Explain with example, where it is appropriate.

Attempt Question No.1 and *any* **two** from the rest

1. *(a)* What is the difference between an activation record and an activation instance?

(b) What are the return address, dynamic link and parameter placed in the bottom of the activation record? Explain with examples. 3+7=10

2. *(a)* What is one possible disadvantage of treating the assignment operator as if it were an arithmetic operator?

(b) In what way is C's **for**-statement more flexible than that of many other languages?

(c) What are formal parameters and actual parameters?

(d) What are the design issues for subprograms?

(e) Describe the ways that aliases can occur with pass-by-reference in C++. 2+2+2+2+2=10

3. *(a)* What are two kinds of abstractions in programming languages?

(b) What are language design issues for abstract data types?

(c) Why are destructors essential in C++?

(d) What problems can occur using C to define abstract data types? 2+3+2+3=10

4. *(a)* What is the difference between a class variable and an instance variable?

(b) What do you mean by virtual method, abstract method and abstract class?

(c) What is a pure virtual function in C++?

(d) How can exceptions be explicitly raised in C++? Explain with examples. 2+3+2+3=10

★ ★ ★