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**Sixth Semester B.E. Degree Examination, Dec.2017/Jan.2018**  
**Programming Languages**

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting  
at least TWO questions from each part.**

**PART – A**

- 1 a. Explain the distinction between compilation and interpretation. What are the comparative advantages and disadvantages of the two approaches? (10 Marks)
- b. Explain stack-based allocation. (05 Marks)
- c. What is a dangling reference? Explain the closest nested scope rule. (05 Marks)
- 2 a. Describe the difference between deep and shallow binding of referencing environments. (06 Marks)
- b. What is a subroutine closure? What is it used for? How is it implemented? (08 Marks)
- c. Explain the differences between over loading, coercion and polymorphism. (06 Marks)
- 3 a. What are continuations? What other language features do they subsume? (06 Marks)
- b. Describe the jumpcode implementation of short-circuit Boolean evaluation. (06 Marks)
- c. Describe three subtleties in the implementation of enumeration – controlled loops. (08 Marks)
- 4 a. What is a type clash? Discuss the differences between the denotational, constructive and abstraction-based views of types. (06 Marks)
- b. Under what circumstances does a type conversion require a run-time check? Explain with an example. (06 Marks)
- c. What is a conformant array? What is an array slice? For what purposes are slices useful? (08 Marks)

**PART – B**

- 5 a. Discuss the trade offs between pointers and the recursive types that arise naturally in a language with a reference model of variables. (06 Marks)
- b. Discuss the advantages and disadvantages of the interoperability of pointers and arrays in C. (06 Marks)
- c. Why is equality testing more subtle than it first appears? (08 Marks)
- 6 a. Explain a typical calling sequence. (08 Marks)
- b. Describe how to maintain the static chain during a subroutine call. (06 Marks)
- c. What is the difference between formal and actual parameters? (03 Marks)
- d. How are you passing a subroutine argument? (03 Marks)
- 7 a. What is the difference between a co-routine and a thread? (06 Marks)
- b. Describe three alternative means of allocating co-routine stacks. What are their relative strengths and weaknesses? (08 Marks)
- c. Name three important benefits of abstraction. (06 Marks)
- 8 Write short notes on the following:
  - a. Currying. (05 Marks)
  - b. Functional programming concepts. (05 Marks)
  - c. Logic programming concepts. (05 Marks)
  - d. Scripting language. (05 Marks)

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