Paper Id: 110503 Roll No:

B. TECH
(SEM V) THEORY EXAMINATION 2019-20
PRINCIPLES OF PROGRAMMING LANGUAGES

Time: 3 Hours *Total Marks: 70*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. **Attempt *all* questions in brief.** **2 x 7 = 14**
   - (a) What are advantages and disadvantages of dynamic local variables?
   - (b) Explain a lambda expression.
   - (c) Explain about parsing.
   - (d) Define pass by result.
   - (e) Write any two design issues for arithmetic expressions.
   - (f) Explain fundamentals of functional programming language.
   - (g) What is an overriding method?

SECTION B

2. **Attempt any *three* of the following:** **7 x 3 = 21**
   - (a) Explain about static, fixed stack dynamic, fixed heap dynamic and dynamic arrays.
   - (b) Write notes on coercion expressions and short-circuit evaluation.
   - (c) Write differences between procedural and non-procedural languages.
   - (d) Discuss about language recognizers and language generators.
   - (e) What is an event? How the events are handled in various OOP languages.

SECTION C

3. **Attempt any *one* part of the following:** **7 x 1 = 7**
   - (a) Write notes on context free grammars. How to identify whether a grammar is unambiguous?
   - (b) Define name and structure type compatibility. What are relative merits of these two?

4. **Attempt any *one* part of the following:** **7 x 1 = 7**
   - (a) What mixed-mode assignments are allowed in C and Java?
   - (b) Explain various primitive data types with suitable examples.

5. **Attempt any *one* part of the following:** **7 x 1 = 7**
   - (a) Define a subprogram. Write the semantics of call and return of a subprogram.
   - (b) Explain in detail various design issues of character string types.

6. **Attempt any *one* part of the following:** **7 x 1 = 7**
   - (a) Explain how message passing helps in concurrency control? Explain with an example.
   - (b) Define monitor? Explain how cooperation synchronization and competition synchronization are implemented using monitors.

7. **Attempt any *one* part of the following:** **7 x 1 = 7**
   - (a) Write a prolog description of your family tree , going back to your grandparents and including all descendants. Be sure to include all relationships
   - (b) Explain in what ways ML is different from Scheme.