

II B. Tech II Semester Supplementary Examinations, November - 2019
PRINCIPLES OF PROGRAMMING LANGUAGES

(Com to CSE, IT)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the question in **Part-A**
 3. Answer any **FOUR** Questions from **Part-B**

PART -A

1. a) What are general purpose languages? Give some examples. (2M)
- b) What are name type and structured type compatibility? (3M)
- c) Differentiate between procedures and functions. (2M)
- d) What is the difference between an exception and an error? Give examples. (2M)
- e) Define domain set and range set w.r.t. functional languages. (3M)
- f) What are declarative languages? (2M)

PART -B

2. a) Discuss language evaluation criteria and the characteristics that affect them. (7M)
- b) Consider the grammar: (7M)
 - $\langle \text{assign} \rangle \rightarrow \langle \text{id} \rangle = \langle \text{expr} \rangle$
 - $\langle \text{id} \rangle \rightarrow A \mid B \mid C$
 - $\langle \text{expr} \rangle \rightarrow \langle \text{id} \rangle + \langle \text{expr} \rangle \mid \langle \text{id} \rangle * \langle \text{expr} \rangle \mid (\langle \text{expr} \rangle) \mid \langle \text{id} \rangle$
 Give parse tree and left most derivation for $A = A * (B + (C * A))$ and $A = A * (B + (C))$.
3. a) Explain about evaluation of static scope and dynamic scope. (7M)
- b) What are mixed mode arithmetic expressions? List their merits and demerits. (7M)
4. a) Explain the basic requirements for implementing call and return of simple subprograms. (7M)
- b) What is an Activation Record Instance? Explain different parts of it and implementation in the case of a recursive factorial function. (7M)
5. a) Explain different design issues for object oriented languages. (7M)
- b) Discuss the reasons for using exception handling in a programming language. What if there exist programming languages with no exception handling? (7M)
6. a) Write about data types and structures in LISP. (7M)
- b) Discuss in detail about lambda expressions. (7M)
7. a) Explain about first-order predicate calculus. (7M)
- b) What are multi-paradigm languages? Explain with examples. (7M)