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CSE 1817 PE 43

Roll No. of candidate

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Azara, Hatikhowapara,
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B.Tech. 7th Semester End-Term Examination

Computer Science and Engineering

PRINCIPLES OF PROGRAMMING LANGUAGES

New Regulation (w.e.f. 2017-18) &

New Syllabus (w.e.f. 2018-19)

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question No. 1 and any *four* from the rest.

1. Answer the following (MCQs) : (10 × 1 = 10)
- (i) Which of the following Programming language is an example of functional programming language?
- (a) C (b) Java
- (c) Python (d) Lisp
- (ii) Which of the following Inheritance is not found in Java?
- (a) Multilevel inheritance (b) Multiple Inheritance
- (c) Hierarchical Inheritance (d) None of the above
- (iii) Just-In-Time compilation also known as
- (a) Dynamic Compilation (b) Static Compilation
- (c) Run Time compilation (d) Both (a) and (c)
- (iv) An RMI server is responsible for _____
- (a) Creating an instance of remote object
- (b) Exporting the remote object
- (c) Binding the instance of the remote object to the RMI registry
- (d) All of the above

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- (v) The objects are passed as _____ in Remote Method Invocation.
- (a) Value (b) Reference
(c) Name (d) Result
- (vi) Which of the following fields the Prolog programming language can be used?
- (a) Automated Reasoning (b) Machine Learning
(c) Robot Planning (d) All of the above
- (vii) What is the use of '=' in Prolog programming?
- (a) Unification (b) Arithmetic Evaluation
(c) Reduction (d) None of the above
- (viii) The output of the LISP expression (mapcar #'+' (10 20 30 40) '(1 2 3 4))
- (a) (100 10) (b) (11 22 33 44)
(c) (11 12 13 14) (d) (14 23 33 41)
- (ix) The building blocks of LISP programs are
- (a) Atom (b) List
(c) String (d) All of the above
- (x) The output of the LISP expression (caar '((10 12) (30 40)))
- (a) 30 (b) 10
(c) (10 30) (d) None of the above

2. (a) Discuss the characteristics of a good programming language. (8)
- (b) What is type conversion? How is it performed explain with an example. (1+4=5)
- (c) What is aliasing? (2)
3. (a) Define loosely coupled system. Give example of such system (2+1=3)
- (b) What is shared memory? Discuss the shared memory concept. Mention the issues occur due to the use of shared memory. (2+5+3=10)
- (c) What is the use of semaphore? (2)
4. (a) What are the forms of Horn clauses? (6)
- (b) Give general definitions of resolution and unification. (2+2=4)
- (c) What are the different types of programming languages? Explain. (5)
5. (a) What is S-expression in LISP? Give examples (2+2=4)
- (b) Write a LISP function to find the factorial of a number. (5)
- (c) Discuss Lambda expressions and Lambda function in LISP with examples. (6)

6. (a) Discuss about syntax and semantics of programming languages. (5)
- (b) Write the following English conditional statements as Prolog-headed Horn clauses:
- (i) If Fred is the father of Mike, then Fred is an ancestor of Mike.
- (ii) If Mike is the father of Joe and Mike is the father of Mary, then Mary is the Sister of Joe.
- (iii) If Mike is the brother of Fred and Fred is the father of Mary, then Mike is the uncle of Mary. (2+2+2=6)
- (c) Explain how backtracking works in Prolog. (4)
7. Write short notes (any *three*) (3 × 5 = 15)
- (a) Parallel C
- (b) Recursion
- (c) Fact and Rule in Prolog
- (d) Control statements in LISP

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