M. C. A.

(SEM. II) EXAMINATION, 2008-09
PARADIGMS OF PROGRAMMING

Time : 3 Hours]   *[Total Marks : 100*

*Note : Attempt **all** questions.*

1   Answer any **four** parts :   5×4=20

   (a) Discuss various attributes of a good programming language.

   (b) Give various language paradigm and explain any one of them.

   (c) Describe the advantages and disadvantages of some programming environment you have used.

   (d) Which produces a faster program execution, a compiler or a pure interpreter ? Explain why.

(e) What do you mean by syntax and sementics of a programming language ? Explain in reference to a programming language that you have used.

(f) Define and explain binding and binding time.

2 Answer any **four** parts : 5×4=20

(a) What are the advantages and disadvantages of storing Booleans in bits instead of words ?

(b) Discuss the design issues for names.

(c) Give advantages and disadvantages of garbage collection support.

(d) Describe the elementry data types that are built into the hardware of your computer with example.

(e) Give a formula for determining the maximum no. of bits required for storage of any value in the integer subrange M...N., where M and N are any two integer such that M < N.

(f) Explain the call by value parameter passing with suitable example.

3 Answer any **two** parts : 10×2=20

(a) Describe the following with examples :

   (i) Data abstraction

   (ii) Message Passing

(b) (i) What are the three characteristic features of object oriented langauge ?

   (ii) What is a virtual method ?

(c) Describe the seven design issues used for object oriented languages.

4 Answer any **two** parts : 10×2=20

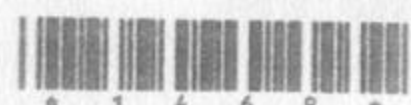(a) Discuss functional form and referential transperency with proper example.

(b) Define the following :

   (i) High order functions

   (ii) Curried functions.

(c) (i) What data types were part of the original LISP ? Explain.

   (ii) Why were imperative features added to most dialects of LISP ? Explain.

5 Answer any **two** parts : 10×2=

(a) Discuss the three primary uses of symbolic logic in formal logics.

(b) (i) What are the forms of Horn Clauses ?

(ii) Name some logic programming languages and give various data types supported by that language

(c) (i) Show that the language generated by the following grammar is a regular language :

$$S \rightarrow aSa/a$$

(ii) What is meant by program verification ? Explain with example.

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