

This question paper contains 3 printed pages.

6136

Your Roll No.....

MCA / IV Sem.

J

Paper MCA - 403

PROGRAMMING PARADIGMS

(Admissions of 2006 & onwards)

Time 3 hours

Maximum Marks 60

*(Write your Roll No on the top immediately
on receipt of this question paper)*

Attempt all questions

Parts of a question must be answered together.

- 1 a) Illustrate the variety of bindings and binding times for the following statement
 $X = X + 10$ 06
- b) Discuss the main factors that make it difficult to determine the precise specification of an operation. 06
- c) What is strong typing? Explain 02
- 2 a) How are fixed point real numbers implemented in a language? Explain with suitable example 05
- b) Differentiate between translation and software interpretation with the help of suitable example 05
- c) Give the access formula for computing the location of component A [I, J] of a matrix A declared as
 $A : \text{array} [LB_1 \dots UB_1, LB_2 \dots UB_2]$
where A is stored in column major order 05

P.T.O

- 3 a) Discuss the following method for transmitting parameter with the help of examples .
- (i) Call-by-name
 - (ii) Call-by-value result. 05
- b) Prolog rules can be viewed as logical predicates. The rule $a :- b, c$ will cause a to succeed if b and c both succeed. So we can say a is true if $b \wedge c$ is true. Under what conditions for p, q, r and s are the following Prolog rules satisfied ?
- (i) $X :- p, !, q$
 $X :- r, s$
 - (ii) $X :- p, q$
 $X :- r, !, s$ 04
- c) Write a function Append in Prolog to append two given lists. 04
- 4 a) Show the structure of activation record for the given subprogram .
- ```
float FUNC (int X, float Y)
{ const z = 10,
 # define maxval = 20,
 int k; char A [5] ,
 k = max val;
 if (N > Z)
 return (2 * z + k);
}
```
- 05
- b) Discuss the advantages and disadvantages of dynamic type checking over static type checking. 05

- c) Write an iterative function in LISP named `sum-all ( )` using `do` that takes an integer `n` as argument and returns sum of integers from 1 to `n`. For example  
`(sum-all 5)` should return 15. *04*
- d) What are the optional parameters in LISP ? Explain with suitable example. *04*