Total No. of Questions : 12]

SEAT No. :

P1419

[Total No. of Pages : 4

[4858] - 186

T.E. (Computer Engg.) (Semester - II)

PRINCIPLES OF PROGRAMMING LANGUAGES

(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates :-

1) ***Answer any three questions from each section.***
2) ***Answers to the two sections should be written in separate answer books.***
3) ***Figures to the right side indicate full marks.***

SECTION - I

Q1) a) What do you mean by programming paradigms? State key features of following **[10]**

i) Functional programming

ii) Logic programming

iii) Parallel programming

iv) Concurrent programming

b) What is the scope, visibility and lifetime of a following variables. **[8]**

i) static variable ii) extern variable

OR

Q2) a) Explain difference between recursive call and ordinary call of a program. How recursive subprogram call acts as an important sequence control structure in programming? **[8]**

b) Differentiate between structured and nonstructured data type. **[4]**

c) What do you mean by storage management? Explain static and dynamic storage management. **[6]**

P.T.O.

Q3) a) What are the features of procedural programming? How procedures and modularity makes procedural programming as a better choice for programs. **[8]**

b) With suitable example, demonstrate how nested procedures and functions acts as a efficient program design construct. **[8]**

OR

Q4) a) Explain desirable and undesirable characteristics of procedural programming. **[8]**

b) What are parameter passing techniques used in PASCAL? Explain with example. **[8]**

Q5 a) What are advantages and disadvantages of inheritance in Java. **[4]**

b) What is difference between pointer and references with reference to object oriented programming. **[6]**

c) With suitable examples, demonstrate the role of various predefined exception classes in Java. **[6]**

OR

Q6) a) Explain following kinds of variables supported by Java. **[8]**

i) Instance variable ii) Static variable

iii) Local variable iv) Parameter variable

b) What do you mean by package/List and explain in brief standard Java packages. **[4]**

c) Explain the use of JDBC in database programming. **[4]**

SECTION - II

Q7) a) Explain .Net framework architecture and function of CLR? **[10]**

b) Explain types of access specifiers with example. **[8]**

OR

Q8) a) What is a polymorphism and types of polymorphism. **[8]**

b) Describe the structure of c# program. **[5]**

c) What is a metadata? Mention uses in .NET. **[5]**

Q9) a) Write a following statement in PROLOG. **[8]**

i) If Fido is yellow Lab, then Fido is a Dog.

ii) If it is Tuesday and it is February, then there is school.

iii) If Rajiv is a male and Rajiv is your parent, then Rajiv is your Father.

iv) If X is your parent, then X is your mother or X is your father.

b) State and explain key features of Logical Programming specification. **[8]**

OR

Q10) a) Consider following PROLOG Database of Vehicles/Instrument and their fuels. **[8]**

Fuel_Drives(Prtrol, 2 wheeler)

Fuel_Drives(CNG , 4 wheeler)

Fuel_Drives(Prtrol,4 wheeler)

Fuel_Drives(CNG, Truck)

Fuel_Drives(LPG, Stove)

Fuel_Drives(Diesel,4 wheeler)

Fuel_Drives(Kerosene, Batti)

Fuel_Drives(Diesel, Engine)

Fuel_Drives(LPG, Batti)

Identify result in following cases.

i) Gole: Fuel_Drives (petrol, X) and Fuel_Drives(Diesel, X)

ii) Gole: Fuel_Drives (LPG, X) and Fuel_Drives(Y, X)

iii) Specify goal to identify all fuels of 4 wheelers

iv) Specify goal to identify all vahicles driven by LPG and CNG.

b) Explain following Preliminary notation used by PROLOG with suitable examples. **[8]**

i) Facts

ii) Existential Query

iii) Clauses

iv) Deductions

Q11) a) Write a short note on Binding in LISP. **[6]**

b) Explain numeric predicate function in LISP. **[4]**

c) Write LISP program to skip last n element from a given list. **[6]**

OR

Q12) a) Write a LISP program to display the result of a given arithmetic operation on two numbers. **[4]**

b) Explain Shallow binding and Deep binding with respect to LISP. **[4]**

c) Explain the following expression evaluation techniques with proper examples. **[8]**

i) Short circuit evaluation

ii) Outermost evaluation

iii) Selective evaluation

iv) Innermost evaluation

⌘⌘⌘