

**SIXTH SEMESTER B.TECH-MODEL QUESTION PAPER**  
**13.602 PRINCIPLES OF PROGRAMMING LANGUAGES**  
**Model Question Paper**

**Time: 3.00 Hrs**

**Max. Marks: 100**

**PART – A**

Answer **all** questions

- 1) With the help of a neat diagram, explain activation record.
- 2) Can a user access a non-local object in case of subroutines? Give valid reasons.
- 3) Draw short circuit evaluation for:

if((A>B)and(C>D)) or(E<>F) then

**then-clause.**

else

**else-cause.**

Explain the advantages of short-circuit?

- 4) Explain the significance of this parameter in object oriented languages?
- 5) What is a just-in-time (JIT) compiler? What distinguishes dynamic compilation from just-in-time compilation? **(5\*4=20)**

**PART– B**

Answer any one full question out of the two from each module

**MODULE – I**

- 6)
  - a) Consider the following records of a particular language. Let the size of each char variable be 1 byte, int variable be 4 bytes and double be 8 bytes.

1) **struct employee{**

**char name[2];**  
**int age;**

2) **union employee{**

**char name[2];**  
**int age;**

**double mark;**

**double mark;**

}

}

Draw the memory layout for the records (1) and (2)

**12**

b) Explain Logically Controlled Loop with suitable examples.

**8**

**OR**

7)

a) Which of the programming language uses nested-scope rule? Explain the concept of nested-scope rule with an example. **10**

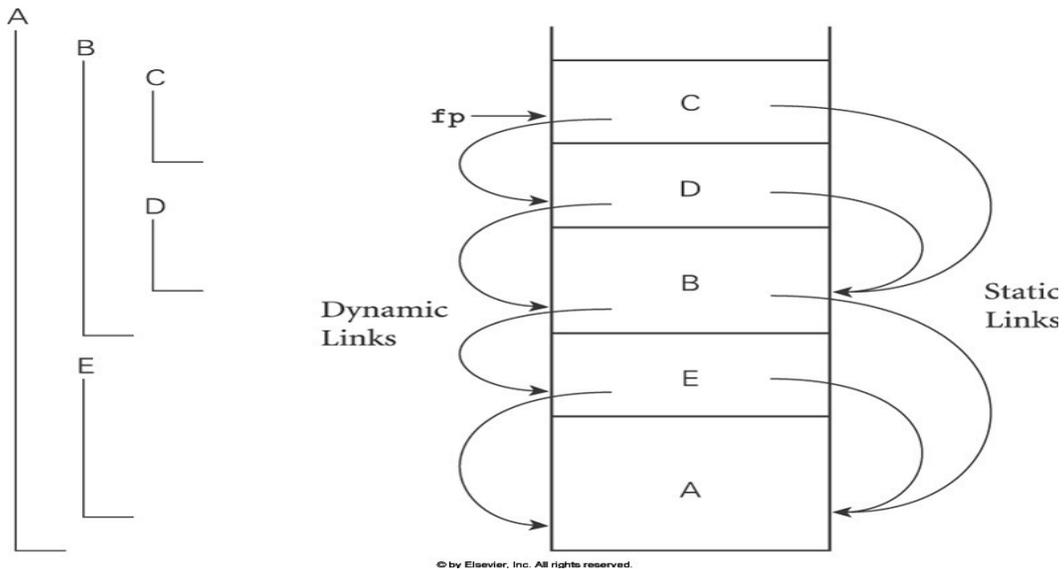
b) What is the use of static links? Compare declaration order in Pascal, Modula-3 and C++.

**10**

**MODULE - II**

8)

a) Explain static link, dynamic link and activation record with help of given figure. **10**



b) Explain database manipulation and searching strategies used in Prolog.

**10**

**OR**

9)

- a) Give an overview of Scheme with suitable examples .Write its applications? **10**
- b) Explain co-routine? Why cactus-stack is used in co-routine? Distinguish from subroutine? **10**

**MODULE - III**

10)

- a) What are the characteristics of scripting languages? **5**
- b) Write down the matching strings of following regular expression of a scripting language
  - 1) /ab(cdlef)g\*/
  - 2) /b[aeiou]d/
  - 3) /0x[0-9a-fA-F]+/ **3**
- c) Write short note on
  - 1) Modifiers and Escape Sequences.
  - 2) Greedy and Minimal Matches.
  - 3) Data types of Scripting Language. **12**

**OR**

11)

- a) Write short note on Dynamic Method Binding of object oriented languages. **10**
- b) Consider the following program

```
class student: public person, public gp_list_node {...
```

Explain the type of inheritance is used in this program? **6**
- c) Write a short note on constructors? **4**

**MODULE - IV**

12)

- a) Explain why synchronization is necessary in thread? **10**
- b) Explain
  - i) Symbolic debugging **5**
  - ii) Reflection **5**

**OR**

13) Explain the working principles of threads. With a neat diagram show the architecture of thread? **20**