

**II B.Tech II Semester Supplementary Examinations, Apr/May 2008**  
**PRINCIPLES OF PROGRAMMING LANGUAGES**  
(Computer Science & Systems Engineering)

**Time: 3 hours**

**Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) Explain the features of object oriented programming.  
(b) Write BNF description for **arithmetic expressions** which implements the Operator hierarchy of any imperative language. [6+10]
  
2. (a) Compare the FORTRAN computed GOTO with Pascal case statements especially in terms of reliability.  
(b) Rewrite the following code segment using a loop structure in the following languages
  - i. Pascal
  - ii. Ada

```
k:=(j+13)/27;  
loop:  
if k > 10 then goto out  
k:= k+1.2  
I=3*k-1;  
goto loop  
out : ...
```

Assume all Variables and constants are floating point type [6+10]
  
3. (a) What are the advantages and disadvantages of language supporting name equivalence and structural equivalence.  
(b) Dynamic type binding is closely related to implicit dynamic variables. Explain their relation ship. [8+8]
  
4. (a) Explain the importance of scope in a programming language.  
(b) How display is used during runtime. [8+8]
  
5. Discuss the general features of procedures and the various parameter passing mechanisms. [16]
  
6. (a) Discuss the data abstraction in MODULA.  
(b) Describe abstract data types with suitable examples. [8+8]
  
7. Discuss how producer-consumer problem is solved in:
  - (a) concurrent-Pascal

(b) ADA. [8+8]

8. (a) Represent the following statements as a rule in PROLOG  
X is brother of Y if X is male, X parents are M (mother) and F (father) and  
Y parents are also same.

(b) Explain the following in PROLOG with examples.

i. fact.

ii. functor.

iii. conjunction.

iv. question. [8+8]

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