Code : 051610

B.Tech 6th Semester Exam., 2018

PRINCIPLES OF PROGRAMMING LANGUAGES

Time : 3 hours *Full Marks* : 70

Instructions:

(i) The marks are indicated in the right-hand margin.

*(ii) There are **NINE** questions in this paper.*

*(iii) Attempt **FIVE** questions in all.*

*(iv) Question No. **1** is compulsory.*

1. Choose the correct choice for each of the following (any *seven*) : 2×7=14

(a) Program subroutines are

(i) called by other programs

(ii) fixed variables

(iii) default constants

(iv) default variables

(b) Statement "130 num(subs) = 2*subs-1" is an example of

(i) Array in C

(ii) Array in COBOL

(iii) Array in PASCAL

(iv) Array in Basic

(c) An instruction which tells assembler how to deal with the whole program is classified as

(i) direction

(ii) directive

(iii) director

(iv) compiler

(d) The sequence of instructions that are carried out for a particular task is classified as

(i) routine

(ii) subroutine

(iii) procedure

(iv) function

(e) A special quantity named in a program and its value can be changed is called

(i) exponent

(ii) mantissa

(iii) constant

(iv) variable

(f) In programming language, 'identifier' can be

(i) variable

(ii) constant

(iii) array

(iv) All of the above

(g) Word or set of letters that can be used to represent a specific function and are easily memorable is classified as

(i) symbolic address

(ii) line address

(iii) mnemonics

(iv) None of the above

(h) Aliasing in the context of programming languages refers to

(i) multiple variables having the same memory location

(ii) multiple variables having the same value

(iii) multiple variables having the same identifier

(iv) multiple uses of the same variable

(i) Consider the following program :

```
 Program P2
var n: int:
   procedure W(var x: int)
   begin
     x=x+1;
     print x;
   end
   procedure D
   begin
     var n: int;
     n=3;
     W(n);
   end
begin//beginP2
 n=10;
 D;
End
```

If the language has dynamic scoping and parameters are passed by reference, what will be printed by the program?

(i) 10

(ii) 3

(iii) 11

(iv) 4

(j) What is printed by the print statements in the program P1 assuming call by reference parameter passing?

```
Program P1()
{
x=10;
y=3;
  func1 (y, x, x);
  print x;
  print y;
}
func1 (x, y, z)
{
  y=y+4;
  z=x+y+z; }
```

(i) 10, 3

(ii) 31, 3

(iii) 27, 7

(iv) None of the above

2. (a) What are the paradigms of programming? Explain with example.

   (b) Describe lexical analysis, syntactic analysis and semantic analysis. 7+7

3. (a) What are different steps in synthesis of object programming?

   (b) Write the difference between linking and loading of object program. 7+7

4. (a) Explain different types of inheritance with example of each.

   (b) Which type of inheritance cannot be implemented in practical and why? 7+7

5. Explain the difference with example between the following : 14

   (a) Implicit and Explicit sequence control

   (b) Arithmetic and Non-arithmetic sequencing control

   (c) Static scope and Dynamic scope

6. (a) Explain static storage and heap storage.

   (b) Explain the use of static and heap storage with suitable example. 7+7

7. (a) Explain static scope and dynamic scope using appropriate example.

(b) Explain the block structure of the subprogram control sequence. 7+7

8. (a) What is polymorphism? Explain in detail.

(b) Write a client-server program that shows handshaking between client and server. 7+7

9. Write short notes on the following : 3+3+4+4

(a) Local variables

(b) Formal translation models

(c) Exception handlers

(d) Client-server computing

* * *