



CSE 1178: Programming in Pascal

Duration: 2 Hours

Date: 13.07.2009

Time: 1.30 pm – 3.30 pm

Answer Four Questions Only.

Q1.

- Describe three main characteristics of computers.
- What are the two types of memory in a computer?
- How do you communicate with a computer? Explain very briefly.
- Which of the following words are invalid variable names? Give reasons.

- | | | |
|-------------|------------|-----------------|
| i) 2 ndfile | ii) #name | iii) First Name |
| iv) AGE | v) Name123 | |

Q2.

- Write answers for the following Pascal expressions:
 - $7 \text{ MOD } 2$
 - $\text{ROUND}(6.6)$
 - $\text{TRUNC}(5.5)$
 - $\text{SUCC}('H')$
 - $\text{PRED}('D')$
- Obtain answers when you evaluate the following expressions considering *operator precedence* in Pascal.

- $10 + 6 * 5 - 2 \text{ DIV } 3$
- $((6+4) * 4 - 8) \text{ DIV } 2$

- Write arithmetic expressions in Pascal for the following formulae:

- PV/RT
- $Ax^2 + Bx + C$
- $B + \text{Square root of } (B^2 - 4AC)$

- What are the four basic data types used in Pascal?
Classify each of the following according to the four basic types.

- 12
- 55.67
- A

Q3.

- a. Describe four data types used in Pascal.
- b. Write a program in Pascal to add the first 50 integers from 1 to 50 using the FOR loop.
Hint : sum = 1+2+3+.....+50.
- c. Modify the above program to do the same operation using the REPEAT-UNTIL loop.
- d. Modify the above program to do the same operation using the WHILE loop.

Q4.

- a. The values of a, b, c are 30, 27 and 77 respectively. Write down the output of the following sequence of WRITE/WRITELN statements.

```
WRITELN(a, ' ', b, ' ', c);  
WRITE(a);  
WRITE(c);
```

- b. The following program contains few errors.

```
Programme Example One(OUTPUT)  
Var integer: X,Y;  
Begin;  
Y = 40  
X := Y + 10  
Writeln('The Result is: ',X);  
end
```

Identify each error and rewrite the corrected program.

- c. Write a program to calculate the addition of any given two numbers x and y.
- d. Give the general form of the CASE statement in Pascal. By means of an example, explain how this statement would be executed.

Q5.

- a) Write a Pascal program to find the factorial of a positive integer variable given by the user.

Hint :

The factorial of a positive integer N is defined as

$$N! = N * (N-1) * (N-2) \dots\dots\dots 3 * 2 * 1$$

b) Write a Pascal program to display the following pattern of numbers on the screen.

```
1 2 3 4 5
1 2 3 4 5
1 2 3 4 5
1 2 3 4 5
1 2 3 4 5
1 2 3 4 5
```

c) Write a Pascal program that reads a set of numbers entered by the user and calculates the total and the average. The end of the list of numbers is denoted by entering -1.

Q6.

a. Write the output of the following Pascal program.

```
PROGRAM Global_variable (OUTPUT);

VAR
    X :INTEGER;

PROCEDURE Change;
VAR
    X:INTEGER;
BEGIN
    X := 2
END;

BEGIN
    X :=13;
    Change;
    Write(X)
END.
```

b. Distinguish between *IF-THEN* and *CASE* statements.

c. Write the syntax of *IF-THEN* and *CASE* statements used in Pascal.

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