STRUCTURED PROGRAMMING (PASCAL) (Module I)

TIME: 2 HOURS

Instructions to Candidates

Attempt any THREE Questions
ALL Questions Carry Equal Marks
Question ONE  COMPULSORY

(a). (i). Explain the term Computer Program.  (2 Marks)

   (ii). Explain machine programming Language.  (4 Marks)

   (iii). State any FOUR disadvantages of machine programming language.  (4 Marks)

(b). Explain any FOUR features of fourth generation languages.  (8 Marks)

Question TWO

(a). Explain the FIVE data types in pascal programming language.  (10 Marks)

(b). Write a pascal program to calculate the value of x in the quadratic equation.

\[ ax^2 + bx + c = 0 \]

Where

\[ x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \]

Implement using the following conditions.

If \( b^2 - 4ac = 0 \) then Equation has two equal values.
If \( b^2 - 4ac > 0 \) then Equation has two distinct values.
If \( b^2 - 4ac < 0 \) then Equation has no roots.  (10 Marks)

(c). Design a simple program to enable a user to input THREE integers.  (3 Marks)

Question THREE

(a). State any TWO design tools in computer programming.  (2 Marks)

(b). Draw a program flowchart to calculate the sum of twenty integer values.  (7 Marks)

(c). Implement Q3(b) above using pascal programming language.  (7 Marks)

(d). Write a pascal program to read three integer values compares them and display the largest.  (7 Marks)
Question FOUR

(a). Explain the term structured programming. (2 Marks)

(b). Explain the advantages of structured programming. (10 Marks)

(c). Explain any TWO differences between procedures and functions in pascal programming. (4 Marks)

(d). Develop a pascal procedure to calculate sum and average of ten values. (7 Marks)

Question FIVE

(a). Explain the THREE control structures in pascal programming giving examples. (12 Marks)

(b). Write a pascal program to calculate the area of circumference of a circle, given the following:-

\[
\text{Area} = \pi r^2 \\
\text{Circumference} = 2\pi r
\]

(7 Marks)

(c). State any FOUR rules of creating variables in pascal programming. (4 Marks)