F4BSe f 7 (I)/ Imperative Programming. /50

[Time: 2 $\frac{1}{2}$ Hours]

[Marks:75]

Please check whether you have got the right question paper.

N.B:
1. **All** questions are **compulsory**.
2. Make **suitable assumptions** wherever necessary and **state the assumptions** made
3. Answers to the **same question** must be **written together.**
4. Numbers to the **right** indicate **marks.**
5. Draw **neat labeled diagrams** wherever **necessary.**
6. Use *of* **Non-programmable** calculators is **allowed.**

1.   Attempt *any three* *of the* following: 15
   a. What is the role of a compiler and interpreter in programming?
   b. Draw a flowchart to generate numbers from 1 to 10.
   c. What are the various data types in C? Explain them.
   d. Write the rule for all numeric constants in C.
   e. What is a variable'? How are they declared and used in expressions in C?
   f. Determine if the following identifiers are valid in C
       i.)   record I
       ii.) $tax
       iii.)   123-45-6789
       iv.)   address and name
       v.)   file_3

2.   Attempt *any three* *of the* following: 15
   a. Write a program in C to finds the area and circumference of a circle.
   b. Explain the increment and decrement operator in C with example.
   c. Explain the following functions in C
       i.)   sin( )
       ii.)   exp ( )
       iii.)   pow ( )
       iv.)   tolower (c)
       v.)   putchat (c)
   d. Write a program in C to find fourth roots of a number entered by the user.
   e. Describe the syntax of the scanf () statement in C.
   f. Explain following with suitable example
       : ? , + = and % =

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3.   **Attempt** *any three* *of the* **following:**   15
  a.   Describe the syntax of for statement in C. Explain with suitable example.
  b.   Write a program in C to generate the Fibonacci series (0, 1, 1, 2, 3, 5, 8......) n terms
       using a while loop.
  c.   What is the conditional statement in C? Describe its various syntax.
  d.   Write the general syntax for function declaration and definition. Explain with
       example.
  e.   Write a function fact( ) in C to find the factorial of a number and use it to generate
       factorial of numbers from I to 10.
  f.   Explain with example various ways of calling a function in C.

4.   **Attempt** *any three* *of the* **following:**   15
  a.   What are storage classes in C? What is their scope in C?
  b.   What are preprocessor directives in C? Explain #include and #define in C.
  c.   What are two dimensional arrays in C? How can they be declared and initialized in C?
  d.   Write a program in C to find the sun of 20 double values entered by the user.
  e.   Write a short note on strings in C.
  f.   Explain the following functions in C:-
       i.)   strcat( )
       ii.)   strlen( )
       iii.)   strcmp( )

5.   **Attempt** *any three* *of the* **following:**   15
  a.   What are pointers in C? Write a program in C to add 2 float numbers using pointers.
  b.   Write a short note on pointer arithmetic in C.
  c.   Explain the terms "array of pointers" and "pointer to an array" in C.
  d.   Explain following declarations in C
       struct
       {
       int acct no:
       char acct_type:
       char name[80];
       float balance;
       } account;
       account cust, customer I [l0], *pc;
  e.   Explain the difference between structure and union in C.
  f.   Explain how members of a structure are accessed by a variable and a pointer in C.