



I. Answer any 10 of the following questions:

[10 x 2 = 20]

1. What is subroutine?
2. Write the inference you get from $X := (78)$.
3. Differentiate interface and implementation.
4. Define recursive function.
5. Write an algorithm for Chameleons of Chromeland problem using function.
6. Give an example of function definition parameter without type.
7. What is abstract data type?
8. Differentiate constructors and selectors.
9. Difference between list and tuples?
10. What is know as abstraction?
11. What is a Pair? Give an example.
12. What is a Tuple? Give an example.



II. Answer any 5 of the following questions:

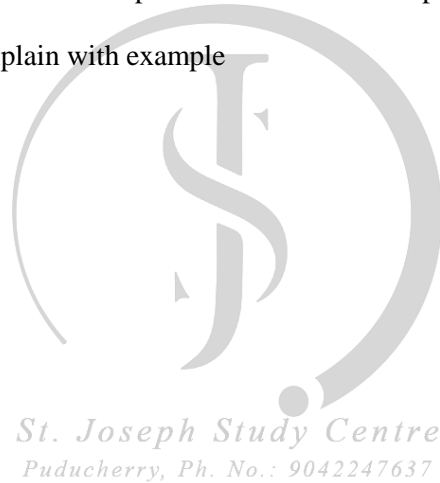
[5 x 3 = 15]

1. Mention the characteristics of Interface.
2. Why strlen is called pure function?
3. What is the side effect of impure function? Give example.
4. Differentiate pure and impure function.
5. Differentiate Concrete data type and abstract datatype.
6. Identify Which of the following are constructors and selectors?
(a) $N1 = \text{number}()$ (b) $\text{accetnum}(n1)$ (c) $\text{displaynum}(n1)$
(d) $\text{eval}(a/b)$ (e) $x, y = \text{makeslope}(m), \text{makeslope}(n)$ (f) $\text{display}()$
7. What are the different ways to access the elements of a list. Give example.

III. Answer any 3 of the following questions:

[3 x 5 = 15]

1. What are called Parameters and write a note on (i) Parameter without Type (ii) Parameter with Type
2. Explain with an example interface and implementation.
3. Identify in the following program
let rec gcd a b :=
if b <> 0 then gcd b (a mod b) else return a
i) Name of the function
ii) Identify the statement which tells it is a recursive function
iii) Name of the argument variable
iv) Statement which invoke the function recursively
v) Statement which terminates the recursion
4. What is a List? Why List can be called as Pairs. Explain with suitable example.
5. How will you access the multi-item. Explain with example



-----ALL THE BEST-----

Test should be written under the supervision of your parents and get the answer paper signed from them.

No corrections should be made after the test timings. We expect your honesty.

Test Papers have to be submitted after the completion of all the 4 tests.

Submission Date of Test Papers: 1st August, 2nd August, 3rd August

Timings: 9 AM – 12.30 PM / 5 PM- 7 PM