

2015

Full Marks : 50

Time : 3 hours

*The figures in the margin indicate full marks for the questions*

Answer any **five** questions

*Candidates are required to give their answers in their own words as far as practicable*

1. (a) Describe the four basic data types. How could we extend the range of values they represent? 5
- (b) The cost of one type of mobile service is ₹ 250 plus ₹ 125 for each call made over and above 100 calls. Write a program to read customer codes and calls made, and print the bill for each customer. 5
2. (a) Use of 'goto' should be avoided. Explain a typical example where we find the application of 'goto' becomes necessary. 5

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- (b) Compare, in terms of their functions, the following pairs of statements : 5
- (i) while and do-while
  - (ii) break and continue
3. (a) What is a dynamic array? How is it created? Give a typical example of use of a dynamic array. 5
- (b) Describe the limitations of using getchar and scanf functions for reading strings. 5
4. (a) What is prototyping? Why is it necessary? 3
- (b) Describe the two ways of passing parameters to functions. When do you prefer to use each of them? 4
- (c) Distinguish between global and local variables. 3
5. (a) What is meant by the following terms? 2+2=4
- (i) Nested structures
  - (ii) Array of structures
- (b) Describe typical applications of pointers in developing programs. 6

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6. (a) Describe an algorithm that will append the contents of one file to the end of another file. 5
- (b) Can we read from a file and write to the same file without resetting the file pointer? If not, why? 5
7. (a) Give the recursion definition of the function to convert on positive integer to its equivalent binary number. 5
- (b) What is a binary tree? Mention the properties of a binary tree. 5
8. (a) Differentiate between the terminal modes and non-terminal modes. 5
- (b) Give an example of a connected graph such that removal of any edge results in a graph that is not connected. 5

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