NEW

2016

BCA

1st Semester Examination

C PROGRAMMING LAB

PAPER—1196 (Set–2)

(PRACTICAL)

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

Answer any *two* questions :   2×25

1. Write a C program to convert a Roman numeral to its decimal equivalent. Example IV –   4

   LX –   60

   DC –   600

   [Hints : I → 1, V → 5, X → 10, L → 50, C → 100, D → 500, M → 1000]

2. Write a C program to evaluate a polynomial of degree n. 25

$$P(x) = x^n + a_{n-1}x^{n-1} + a_{n-2}x^{n-2} + \ldots + a_3x^3 + a_2x^2 + a_1x + a_0$$

by reading its coefficients a_0, a_1 ... a_{n-1} into an array.

3. Write a C program is sort names of your classmates.

25

4. Write a C program to find the 2nd maximum for a given set of $n (\geq 10)$ numbers. 25

5. Write a C program to print pascal triangle. 25

$$
\begin{matrix}
 & & & 1 & & & \\
 & & 1 & & 1 & & \\
 & 1 & & 2 & & 1 & \\
 1 & & 3 & & 3 & & 1 \\
1 & & 4 & & 6 & & 4 & & 1
\end{matrix}
$$

6. Write a C program to concatenate, compare and reverse string(s) using user defined functions. 25

7. Write a C program to insert a substring into given main string from a given position. 25

8. Write a C program to split the array from a particular position. 25

9. Write a C program to accept two integers for a co-ordinate point and determine its Quadrant as well as its distance from origin (0, 0). 25

10. Write a C program to reverse a number. 25

11. Write a C program to print a number (maximum 6 digits) in words. Example : 231 – Two Hundred Thirty One.

25

12. Write a C program to sort a list of numbers using any of the following : 25

    (i) Quick Sort

    (ii) Insertion Sort

    (iii) Bubble Sort

13. Write a C program to multiply/divide a given number by 4 using bitwise operators. 25

14. Write a C program to reverse the words in a sentence of text. Example : "Every Tomorrow Is A Better Tomorrow" → "Tomorrow Better A Is Tomorrow Every". 25

15. Write a C program to print all the perfect numbers as well as their sum within 1 to 100.   25

16. Find the factors of a number and print them in ascending order.   25

17. Write a program in C to generate Fibonacci series using recursion.   25

18. Write a program in C to count the number of evens and odd numbers in an array.   25

Viva   —   *15*

PNB   —   *05*

Internal Assessment   —   *30*

12. Design a Buffer register and show the following result :

Input   = 1010

Output = 1010

13. Design a ripple counter using J-K flip-flop.   30

14. Design a J-K master slave flip-flop and verify its result.
   30

15. Design a 4 bit bidirectional shift register.   30

16. Design asynchronous up counter of the following MOD using IC-7476.   30

(i) MOD 10   (ii) MOD 5

17. Design a clocked SR and J-K flip-flop with preset and clear using NAND gates only.   30

18. Design a 4 bit bidirectional shift register.   30

19. Design AND and OR operation using DTL and establish its truth table.   30

20. Construct astable multivibrator using IC 555 timer. Measure its frequency and duty cycle by CRO.