WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 3rd Semester Examination, 2019

ELSACOR07T-ELECTRONICS (CC7)

Time Allotted: 2 Hours | Full Marks: 40

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.

GROUP-A

1. Answer any ***five*** questions from the following: 2×5 = 10

   (a) What is an infinite loop?

   (b) What are library functions?

   (c) How does C-language differ from any low-level language?

   (d) How does structure differ from that of an array?

   (e) Define recursive function. What is the meaning of the symbol "# include"?

   (f) What are the differences between a stack and queue?

   (g) What are the different known search techniques?

   (h) What is the complexity of a sorting technique?

GROUP-B

Answer any *six* questions from the following 5×6 = 30

2. Write a 'C' program to find the roots of a quadratic equation $ax^2 + bx + c = 0$. 5

3. (a) What are the linear and non-linear data structures? 2

   (b) What is linked list? Write a program syntax to create a node in a singly linked list. 1+2

4. (a) Explain the difference between "=" and "= =" operators. 2

   (b) Write a 'C' program to find the factorial of a number using recursive method. 3

5. (a) What are the differences between variable declaration and variable definition? 2

   (b) Write a 'C' source code file to print first ten fibonacci numbers. 3

6. Write a 'C' program to store and print name, address, roll no of a set of students using structure. 5

7. (a) What is the application of prefix and postfix expressions for data structure? 2

   (b) Convert the following infix expression to postfix expression: 3

$$(3+11)\times(7-2)+(3^2-5)\div 2$$

8. (a) Give the algorithm to add a new 'node' in circular link list. 3

   (b) What is the benefit of a circular queue over others? Will it increase its complexity? 2

9. (a) What is the 'Tree' in data structure? 2

   (b) Give the algorithm of pre-order traversal of a 'Tree'. 3

10. Write a 'C' program to generate all possible 3 digit numbers using 1, 2 and 3. 5

11. What is 'prototype' of a function? Write a 'C' program to find the sum of the given series— 5

$1+\frac{1}{2}+\frac{1}{3}+\cdots\cdots+\frac{1}{n}$ where n is supplied by the user.

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