

2018

Full Marks : 75

Time : 3 hours

*The questions are of equal value*Answer **five** questions, selecting at least **one** from each Group

Group—A

1. What is array? Mention its properties. Write an algorithm to sort an array of n elements.
2. Transform the following infix expressions to their equivalent postfix expressions :
 - (i) $A + (B + C * D + E) + F / G$
 - (ii) $X * Y * Z$
 - (iii) $(A - B) * X + Y / (F - C * E) + D$
3. How do you represent a stack data structure? What are the basic operations performed on a stack? Write an algorithm or program to perform push and pop operations.

J/8(241)—600

(Turn Over)

(2)

4. What is string in 'C'? How memory is allocated for the array of strings? Write five string handling library functions along with examples of each.

Group—B

5. What is adder? Discuss the different types of adder with their truth-table, K-map, Boolean function and circuit design.
6. Draw logic-diagram to represent the following Boolean expressions :

(i) $(x'y)' + x \cdot y$

(ii) $(xy)' + x \cdot y \cdot z$

(iii) $(x' + y)'$

7. Obtain the simplified expressions in sum of products for the following Boolean functions :

(i) $xy + x'y'z' + x'yz'$

(ii) $A'B + BC' + B'C'$

(iii) $a'b' + bc + a'bc'$

Group—C

8. What are the features of a LINUX file system? Discuss the different types of file in LINUX.

(3)

9. What are the different states for a LINUX process? Differentiate between process and daemon process.
10. Write a shell program to find out whether an input integer is an odd or even number.



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