B.E. Electrical (Electronics & Power) Engineering (CBCS Pattern) Third Semester (Old & CBCS)

3BEEE03 / EP303 - C & Data Structure

P. Pages : 2 **GUG/W/18/11488**

Time : Three Hours * 3 5 7 3 * Max. Marks : 80

Notes : 1. All questions carry equal marks.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Write a C program to find whether the given no is prime or not. **8**

b) Explain decision control instructions with the help of: **8**

1) If

2) If-Else

Explain with suitable example.

OR

2. a) Explain the following loop control instruction:- **16**

1) While

2) Do----while

3) For loop

Explain each with suitable example.

3. a) Write a C program to add two arrays using functions? **8**

b) Explain Binary search with suitable example. **8**

OR

4. a) Write a brief note on Arrays Also write a C program to create an array of 10 elements. **8**

b) Explain Merge sort with Algorithm. **8**

5. a) Explain circular linked list. Write a function to insert a new node at a given position. **10**

b) Explain the following with example. Double linked list. **6**

OR

6. Explain single linked list using its all operations. Also write advantages and disadvantages of single linked list. **16**

7. a) Explain stacks with the help of PUSH, POP & traverse functions. Write C functions for the same. **8**

b) Write a brief notes on: **8**

1) Application of stack.

2) Priority Queues.

OR

8. Convert the following with the help of stack. **16**

1) Infix to postfix $\Rightarrow (A+B-D)/(E-F)+G$

2) Infix to prefix $\Rightarrow a-b/(c*d)+(e*f)$

3) Infix to prefix $\Rightarrow A*(b+c)+(b/d)*a+Z*u.$

4) Infix to postfix $\Rightarrow a \&\& b \,||\, C \,||\, C * d$

9. a) Write a algorithm for Breadth first search & Depth first search techniques. **8**

b) Define degrees of a graph. Explain all the representation techniques of a graph. **8**

OR

10. Draw the Binary tree for $(A+B)*(C-D)$ & explain following Binary tree terminology. **16**

1) Root
2) Node
3) Degree of a node
4) Degree of a tree
5) Terminal nodes.
6) Non Terminal nodes
7) Siblings
8) Level
9) Edge
10) Path
11) Depth
12) Forest

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