Roll No. ..... **Total Pages : 03**

OBCA/M-20 1912

DATA STRUCTURE-II

BCA-242

Time : Three Hours] [Maximum Marks : 80

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. Define the following terms : **6×2=12**

(a) Complete Graph

(b) B-Trees

(c) Diagraph

(d) Collision

(e) AVL Search Tree

(f) Hashing

(g) Name the two algorithms to calculate shortest path. **1**

(h) How External sorting differs from Internal sorting ? **3**

Unit I

2. Explain Binary Search Tree in detail. How can you represent it in memory ? What are the applications of binary search tree ? **16**

3. Generate Hauffman's tree with the following data : **16**

Data Item	:	A	B	C	D	E	F	G	H
Weight	:	18	6	10	21	3	12	25	7

Unit II

4. Explain Wharshall's Algorithm to calculate shortest path in detail. **16**

5. What do you mean by topological sorting ? Explain with example. **16**

Unit III

6. Explain Heapsort with the help of example. What are the benefits of using it ? **16**

7. Compare various different sorting algorithms by giving one suitable example for each on the basis of their complexity. **16**

Unit IV

8. Explain various hashing algorithms with the help of suitable examples. **16**

9. (a) Differentiate between Sequential *vs*. Random *vs*. Index Sequential File Organisations. **10**

(b) Define File along with its attributes. Explain various file types and give example of each. **6**