B.E. (Computer Engineering) Fourth Semester (C.B.S.)

File Structure & Data Processing Paper - II

P. Pages : 2 **TKN/KS/16/7392**

Time : Three Hours * 0 7 8 2 * Max. Marks : 80

Notes :
1. Que. No. - 1 OR Que. No. - 2.
2. Que. No. - 3 OR Que. No. - 4.
3. Que. No. - 5 OR Que. No. - 6.
4. Que. No. - 7 OR Que. No. - 8.
5. Que. No. - 9 OR Que. No. - 10.
6. Que. No. - 11 OR Que. No. - 12.
7. Due credit will be given to neatness and adequate dimensions.
8. Illustrate the answers with necessary figures/drawings wherever necessary.
9. Use of Non programmable calculator is permitted.
10. Assume suitable data wherever necessary.

1. a) What are the different methods used for buffer management? Explain each in detail. **8**

b) Differentiate between physical file and logical file. **5**

OR

2. a) Following are given the characteristics of tape drive as follows- **8**
Tape density = 6250 bpi (Bit per inches per track)
Size of interlock gap = 0.75 inch.
File characteristics are as follows-
Number of records = 10, 00, 000 records.
Size of record = 200 bytes.
Calculate how much tape length of tape is needed.
i) If blocking factor = 01.
ii) If blocking factor = 30.

b) What are major strengths and weaknesses of CD- Rom. **5**

3. a) Define the term "Field". Explain with example different methods of field structure. **7**

b) Explain with example UNIX tools for sequential processing. **6**

OR

4. a) State and explain different factors affecting the portability in a file. Also explain different methods used for adiving portability in files. **7**

b) Define following terms:- **6**
i) File Access method ii) Meta data
iii) RRN (Relative Record Number) iv) Template class.

5. a) Define data compression. Explain the method for run length coding. **6**

b) Consider the following frequency table. **8**

Char	p	q	r	s	t
Frequency	28	35	13	10	14

Apply the Huffman coding compression technique to find Variable length coding.

OR

6. a) Explain how records can be deleted and space of deleted record can be reclaimed in :- **8**
i) Fixed Length records. ii) Variable length records.

b) Explain key sorting method with suitable example. **6**

7. a) Write and explain co-sequential match procedure based on single loop. **7**

b) Consider the following list of Unsorted keys F, D, C, G, H, I, B, E, A. **6**
Show stepwise heap building process till the completion of heap.

OR

8. a) Describe how merging is used to sort large files on the disk. **7**

b) Write a detailed note on conceptual tool kit for external sorting. **6**

9. a) What do you mean by multilevel indexing? Explain the following statement "B-Tree is build upward from the bottom, whereas the binary trees are build downward from top". **6**

b) Explain paged Binary tree and Describe the problem associated with paged binary trees. **8**

OR

10. a) Differentiate between the following. **8**
i) Binary search tree and AVL tree.
ii) Indexed set and sequence set.

b) What is virtual B-Tree? Explain LRU replacement scheme used in implementing a virtual B-Tree. **6**

11. a) What is extendible hashing? Explain with suitable example. **7**

b) Explain the following. **6**
i) Double hashing. ii) Linear hashing. iii) Dynamic hashing.

OR

12. a) Consider the set of keys and the corresponding Address procedure by some hashing function. **8**

Key (K)	Home Address h (K)
Amar	20
Akbar	21
Anthony	21
Akash	22
Baby	20

Where table size = 24.
Solve the following using above table.
i) Draw the hash table using collision Resolution by progressive overflow. Also Find average search length to access the disk to retrieve a record.
ii) Draw the hash table using collision resolution technique chaining with a separate overflow area method.

b) Explain Bucket hashing with suitable example. **5**

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