

ROLL NO .....

**2005 ANDHRA UNIVERSITY**  
**III B.TECH I SEMESTER DEGREE EXAMINATION**  
**B.TECH INFORMATION TECHNOLOGY**  
**FILE STRUCTURES**

**NOV/DEC 2005**

**TIME : 3 HOUR**  
**MARK : 70**

**FIRST QUESTION IS COMPULSORY**

**ANSWER ANY FOUR FROM THE REMAINING QUESTIONS**

**ALL QUESTIONS CARRY EQUAL MARKS**

**ANSWER ALL PARTS OF ANY QUESTION AT ONE PLACE**

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1. a) Define the term Stream of bytes and Stream of records
  - b) What is rotational delay? What is the reason to delay?
  - c) When could be disks become bottleneck?
  - d) Write B-tree properties
  - e) What is multiple buffering? What is its use?
  - f) What are the limitations of key sort?
  - g) What are the limitations of binary search?
  2. a) What are the operations required to maintain an indexed file.
  - b) How do you retrieve special subset of records from a data file using combination of secondary key?
  3. What is abstract data model? Why did the early file processing programs does not deal with abstract data model? What are the advantages of using abstract data models in applications?
  4. What do you mean by data compression? Explain about the data compression. What are various techniques of data compression? What are its uses?
  5. What is hashing? Explain the various methods of hashing algorithms.
  6. What is collision? Explain the various collision "resolution techniques".
  7. a) Explain why the number of comparisons is not adequate for measuring performance in sorting large files.
  - b) Construct a B tree for the set of key values (21, 33, 41, 49, 54, 63, 70)\_under the assumption that the number of search key values that fit in a one node is 5 Show the steps involved in the following tasks:
    - i) find record 49
    - ii) Insert record 45
    - iii) Delete record 41
  8. a) Explain how extendible hashing works. Show how it combines tries with conventional static hashing technique.
  - b) In extendible hashing procedure, the directory can occasionally point to empty bucket. Describe two situations that can produce empty bucket.