File Organization

EVALUATION SHEET

1. Match each of these data organization terms with its definition.

Data Organization Term	Definition
Key Field	d
File	a
Record	f
Field	b
Character	e
Library	c

Definitions

a. A collection of units having one or more common characteristics or functions.

b. A single item of specific information.

c. A collection of files stored on magnetic tapes or disks.

d. Used for identifying and locating any part of a file.

e. Unit of usable data, represented within the computer as a combination of bits.

f. A group of related items that are treated as a unit.

2. Indicate whether each of these statements refers to a master (M), a transaction (T), or a report (R) file by writing the correct letter in the space provided.

Statement	File Type
Data extracted for special purpose.	R
Relatively permanent information.	M
Used for handling updates.	T
Contains transitory data.	T
Example: payroll file.	M
Example: a list of overdue customer accounts.	R
Example: a list of inventory additions	T

3. Indicate whether each of these characteristics refers to batch (B) or on-line (L) processing by writing the correct letter in the space provided.

Characteristic	Type of Processing
Transactions are processed sequentially.	B
More accurate updating of master file.	L
Transaction is executed when it is received.	L
Transactions are sorted.	B
Transactions are stored until a sufficient number is collected.	B

4. Check the appropriate box or boxes next to each statement to indicate which file method or methods best answer the statement.

	Sequential	Direct Access	Indexed Sequential
a. Records are physically ordered by their key field.	☑	☐	☑
b. Records are physically stored in no particular order.	☐	☑	☐
c. Records can be accessed directly using a table.	☐	☑	☑
d. Records can be accessed directly by calculating an address from the key.	☐	☑	☐
e. Records can be accessed, one after the other, in alphabetical order.	☑	☐	☑
f. New records are added to the file by reorganizing the entire file.	☑	☐	☑
g. New records require that the table also be updated.	☐	☑	☑
h. Most efficient in use of storage.	☑	☐	☐
i. Requires the most complex software.	☐	☐	☑
j. Not efficient when most of the file's records must be accessed.	☐	☑	☐

5. Perform a binary search by studying this sample index and then filling in the requested information.

Entry Number	Key	Address
1	110	167
2	157	671
3	286	1166
4	294	743
5	333	543
6	400	360
7	462	705
8	595	1023

NOTE
The search key is 333; there are three tries.

a. Write the entry *number* being tested in each try.

  (1) Try one tests entry number   4 .

  (2) Try two tests entry number   6 .

  (3) Try three tests entry number   5 .

b. Indicate entries that are eliminated in each try by writing the entry *numbers* in the spaces provided. *Leave blanks if no entries are eliminated.*

  (1) Try one eliminates entry number(s) ___ ___ ___ ___.

  (2) Try two eliminates entry number(s) 1 2 3 4 .

  (3) Try three eliminates entry number(s) 6 7 8 ___.

c. The try that finds the correct entry is try number 3 .

6. In the space provided, write a T if the statement correctly describes the pointer field in a list organization and an F if it does not.

Description	T or F
Depends in part on sequential storage of records.	F
Contains storage location of the next record in the sequence.	F
Links successive records.	T
Access time does not differ for sequential vs unsequential files,	F
Facilitates addition and deletion of records from the files.	T
One list of pointers can reference several keys.	F
Contains storage address of the next record in the sequence.	T

7. Indicate whether the following statements describe the hashing (H) or the indexing (I) method of addressing records by writing the correct letter in the space provided.

Statement	Addressing Method
Almost impossible to use with a file that has more than one key field.	H
Address of a record is computed from the record's key field.	H
Each record has an entry in a file table.	I
Searching improved through the use of binary search techniques.	I
Two or more records may contend for the same location.	H
Storage address of record computed by adding starting address of the file to a numerical equivalent of the key field letters.	H
Ordered sequentially by keys.	I