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 NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Data Base Management System (course)


Course outline

How does an NPTEL online course work? ()

Week 0 ()

Week 1 ()

Week 2 ()

Week 3 ()

Week 4 ()

Week 5 ()

Week 6 ()

- ☐ Lecture 26: Indexing and Hashing/1 : Indexing/1 (unit? unit=64&lesson=65)

- ☐ Lecture 27: Indexing and Hashing/2 : Indexing/2

Week 6 : Assignment 6

The due date for submitting this assignment has passed.

Due on 2022-10-05, 23:59 IST.

Assignment submitted on 2022-10-05, 12:19 IST

1)

2 points

Choose the incorrect option(s) about indexing from the following.

- a) There can be many clustering indices in a database file.
- b) There can be at most one secondary index in a database file.
- c) It is preferable to use a dense index when the file is not sorted on the indexed field.
- d) Dense index is preferred over the sparse index when the size of a file is small.

☒ a)

☒ b)

☐ c)

☐ d)

Yes, the answer is correct.

Score: 2

Accepted Answers:

a)

b)

2)

2 points

(unit?
unit=64&lesson=66)

☐ Lecture 28:
Indexing and
Hashing/3 :
Indexing/3
(unit?
unit=64&lesson=67)

☒ Lecture 29:
Indexing and
Hashing/4 :
Hashing (unit?
unit=64&lesson=68)

☒ Lecture 30:
Indexing and
Hashing/5 :
Index Design
(unit?
unit=64&lesson=69)

☒ Week 6
Lecture
Material (unit?
unit=64&lesson=70)

☒ Quiz: Week 6
: Assignment
6
(assessment?
name=116)

☐ Feedback
Form (unit?
unit=64&lesson=71)

☒ Assignment 6
Solution (unit?
unit=64&lesson=72)

Week 7 ()

Week 8 ()

**DOWNLOAD
VIDEOS ()**

**Text
Transcripts ()**

Books ()

**Live
Interactive
Session ()**

Consider the following instance of a **Gadgets** table:

Model	Brand	Device	Price
OCD041	Omicron	Desktop	980.00
CMN550	Codemy	Notebook	650.00
GND995	Gamind	Desktop	870.00
ICD011	Inchip	Desktop	1,020.00
BTN300	Bytec	Notebook	1,100.00
OCN114	Omicron	Notebook	860.00
CMD360	Codemy	Desktop	490.00
GNN876	Gamind	Notebook	620.00
BTD405	Bytec	Desktop	780.00
OCD052	Omicron	Desktop	880.00
ICN142	Inchip	Notebook	670.00
OCN116	Omicron	Notebook	1,000.00
BTN305	Bytec	Notebook	990.00
GND967	Gamind	Desktop	800.00
ICD052	Inchip	Desktop	850.00
ICN165	Inchip	Notebook	950.00
OCD065	Omicron	Desktop	920.00
BTN306	Bytec	Notebook	1,090.00
CMN860	Codemy	Notebook	1,200.00

If we want to create an index on **Model** attributes, which of the following indexing can be selected?

- a) Primary and Dense indexing.
- b) Secondary and Dense indexing.
- c) Secondary and Sparse indexing.
- d) Primary and Sparse indexing.

- ☐ a)
- ☒ b)
- ☐ c)
- ☐ d)

Yes, the answer is correct.

Score: 2

Accepted Answers:

b)

3)

2 points

Suppose that one memory block in a disk can store either 32 key pointers or 12 whole records. If a database file contains 1056 records, how many memory blocks do we need to store the data file and the dense index?

- a) 22
- b) 33
- c) 88
- d) 121

- ☐ a)
- ☐ b)
- ☐ c)
- ☒ d)

**Problem
Solving
Session ()**

Yes, the answer is correct.

Score: 2

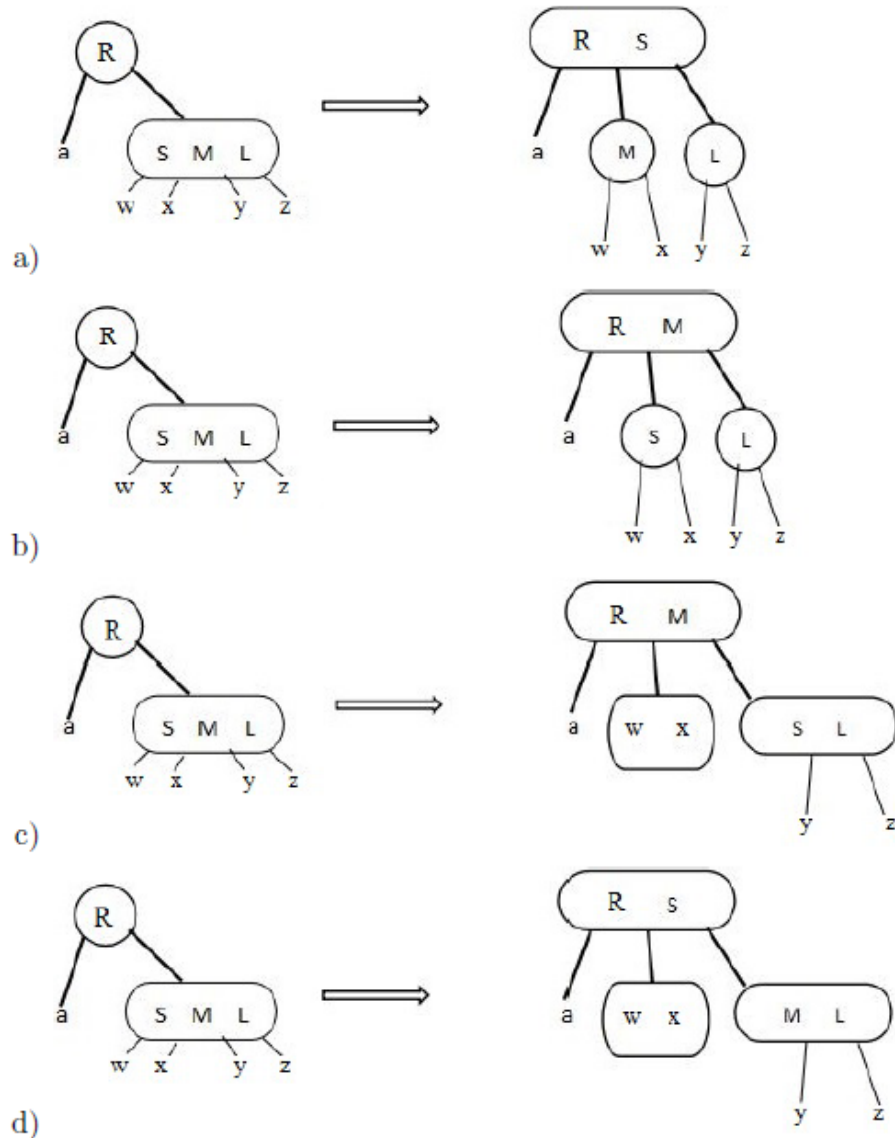
Accepted Answers:

d)

4)

2 points

Which of the following cell splitting strategies are possible in a 2-3-4 tree?



☐ a)

☒ b)

☐ c)

☐ d)

Yes, the answer is correct.

Score: 2

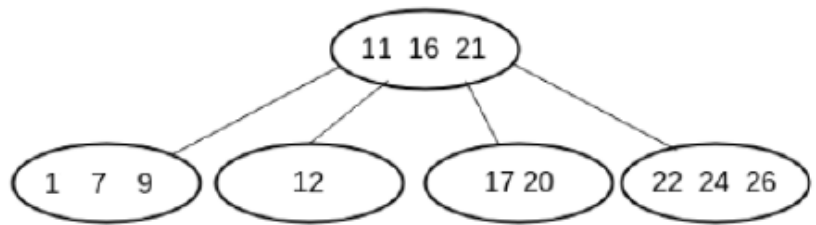
Accepted Answers:

b)

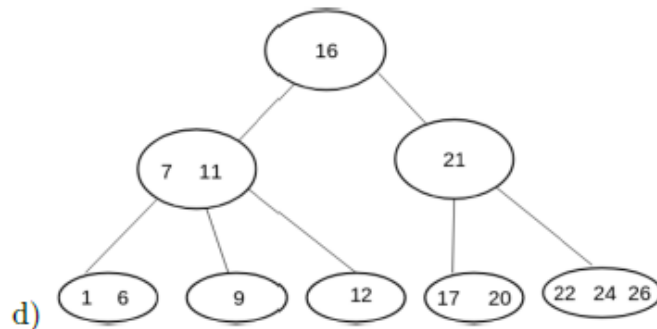
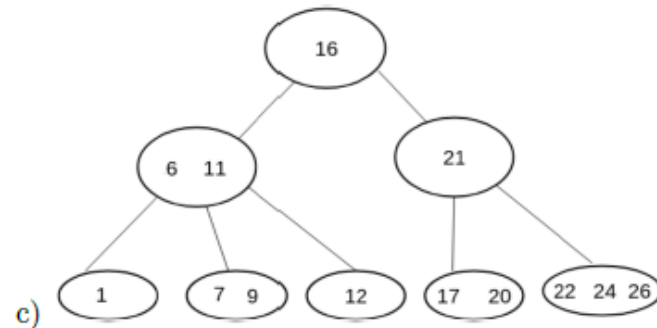
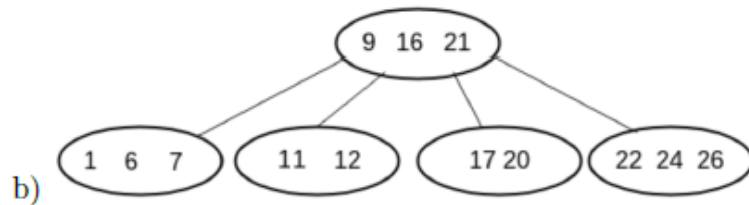
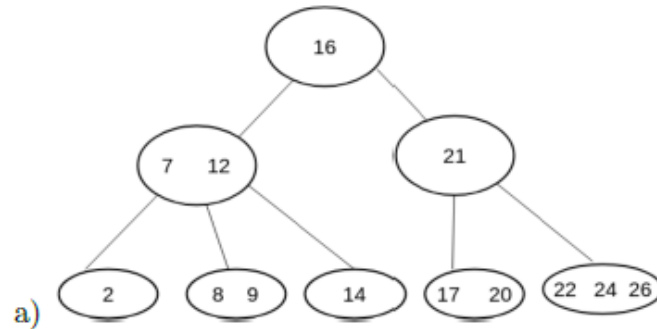
5)

2 points

Consider the following 2-3-4 tree in which each data item is an integer.



What will be the result of inserting 6 in the above tree?



- ☐ a)
☒ b)
☐ c)
☐ d)

No, the answer is incorrect.

Score: 0

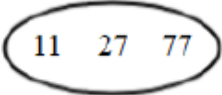
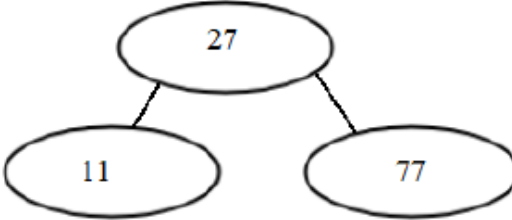
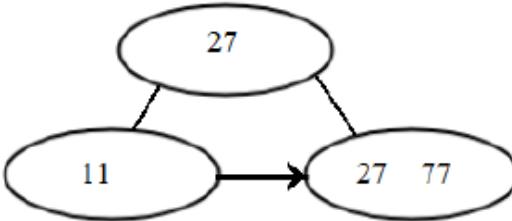
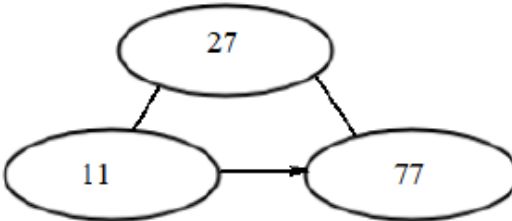
Accepted Answers:

d)

6)

2 points

Identify the correct B^+ -tree of order 3, generated by inserting 27, 11 and 77.

- a) 
- b) 
- c) 
- d) 
- ☐ a)
- ☐ b)
- ☒ c)
- ☐ d)

Yes, the answer is correct.

Score: 2

Accepted Answers:

c)

7)

2 points

In an open hashing system, collision is resolved using linear probing. In the given system, the hash table is of size eight starting with index zero. The hash function is: $(3x + 2) \bmod 7$ where x is the value of the key. Assuming that the hash table is initially empty, which of the following depicts the contents of the hash table when a sequence 10, 23, 37, 41, 45, 53 is inserted into the table?

- a) 37, 23, -, 53, 10, 45, 41, -
- b) 53, 23, 37, -, 10, -, 41, 45
- c) 53, 23, 37, -, 10, 45, 41, -
- d) -, 53, 23, 37, 10, 45, 41, -

- ☐ a)
- ☐ b)
- ☒ c)
- ☐ d)

Yes, the answer is correct.

Score: 2

Accepted Answers:

c)

8)

2 points

Consider the table Flower:

FID	NAME	SEASON
131	Rose	Summer
149	Jasmine	Rainy
252	Lotus	Autumn
256	Daliya	Winter
265	Orchid	Summer
369	Jiniya	Winter
378	Lily	Rainy

Consider the bitmap index for the SEASON field, with S1, S2, S3, and S4 representing different SEASON. Select the correct option for which the bitmap index value of S1, S2 will be as follows:

S1	0	1	0	0	0	0	1
----	---	---	---	---	---	---	---

S2	0	0	0	1	0	1	0
----	---	---	---	---	---	---	---

- a) Summer and Winter
- b) Summer and Autumn
- c) Rainy and Winter
- d) Rainy and Autumn

- ☐ a)
- ☐ b)
- ☒ c)
- ☐ d)

Yes, the answer is correct.

Score: 2

Accepted Answers:

c)

9)

2 points

If the index entries are inserted in sorted order into a B+ tree, choose the correct option(s) from the following statements.

- a) The new entries get directed to last leaf node if the index entries are inserted in ascending order.
- b) When last leaf node gets filled, it will split into three.
- c) If the leaf node splits when inserting in ascending order, the right node is left untouched and the insertions take place on the parent node.
- d) Except for the first and last leaf, the occupancy of nodes is about 100 percent if insertion happens in descending order.

- ☒ a)
- ☐ b)
- ☐ c)
- ☐ d)

Yes, the answer is correct.

Score: 2

Accepted Answers:

a)

10)

2 points

How many maximum numbers of keys, a B-tree of order 4 can store? The height of the tree is 5 and the root node is assumed to be in height zero.

- a) 8191
- b) 4095
- c) 2047
- d) 1023

- ☐ a)
- ☒ b)
- ☐ c)
- ☐ d)

Yes, the answer is correct.

Score: 2

Accepted Answers:

b)