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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 ()

- ☐ Lecture 1 : Course Overview (unit? unit=18&lesson=19)
- ☒ Lecture 2 : Introduction to DBMS/1 (unit? unit=18&lesson=20)
- ☐ Lecture 3 : Introduction to DBMS/2 (unit? unit=18&lesson=21)
- ☐ Lecture 4 : Introduction to Relational Model/1 (unit? unit=18&lesson=22)

Week 1 : Assignment 1

The due date for submitting this assignment has passed.

Due on 2022-08-31, 23:59 IST.

Assignment submitted on 2022-08-31, 20:47 IST

1)

2 points

Consider the following table:

student				
student_roll	name	dept_code	dept_name	project_group
CS121	Rohit	D01	CSE	Image Processing
CS432	Sidra	D03	IT	Computer Architecture
CS432	Sidra	D03	IT	Ethical Hacking
CS133	Reeta	D02	ECE	Signal Processing
CS133	Reeta	D02	ECE	Image Processing
EE134	Rina	D04	EE	Image Processing

Identify the correct statement(s).

- a) The above table is an example of an instance of relation **student**.
- b) The above table is an example of a logical schema of relation **student**.
- c) The above table is an example of a physical schema of relation **student**.
- d) The above table is an example of an abstraction of relation **student**.

☐ a)

☐ b)

☐ c)

☒ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

☐ Lecture 5 :
Introduction
to Relational
Model/2 (unit?
unit=18&lesson=23)

☒ Lecture
material of
Week 1 (unit?
unit=18&lesson=24)

☒ Quiz: Week 1
: Assignment
1
(assessment?
name=109)

☐ Feedback
Form (unit?
unit=18&lesson=25)

☐ Assignment 1
Solution (unit?
unit=18&lesson=26)

Week 2 ()

Week 3 ()

Week 4 ()

Week 5 ()

Week 6 ()

Week 7 ()

Week 8 ()

**DOWNLOAD
VIDEOS ()**

**Text
Transcripts ()**

Books ()

**Live
Interactive
Session ()**

**Problem
Solving
Session ()**

a)

2)

2 points

A relation R has 2 candidate keys with 1 and 2 attributes respectively. There are 40 super keys of R. What is the total number of attributes in R?

a) 3

b) 4

c) 5

d) 6

☐ a)

☒ b)

☐ c)

☐ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

d)

3)

2 points

Consider the following instances:

QB1		QB2	
Q	Ans	Q	Ans
1	x	1	x
2	y	1	y
3	y	2	y

Which of the following relational operations will produce the following tuple only?

3	y	1	y
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a) $(QB1 \cup QB2) \times (QB2 \cup QB1)$

b) $(QB1 - QB2) \cap (QB2 - QB1)$

c) $(QB1 - QB2) \times (QB2 - QB1)$

d) $(QB1 \cap QB2) - (QB2 \cap QB1)$

☐ a)

☐ b)

☐ c)

☒ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

c)

4)

2 points

Consider the following instance of CelestialReport(CelestialObject, ReportBy, ReportScore, GroupLead).

CelestialObject	ReportBy	ReportScore	GroupLead
Pluto	Team 5	90	L. Kurtz
Jupiter	Team 5	88	L. Kurtz
Sirius A	Team 1	96	Samuel
Rigel	Team 8	96	Louie

Which of the following is a Secondary Key in CelestialReport?

- a) {ReportBy, ReportScore}.
- b) {ReportBy, GroupLead}.
- c) {GroupLead, CelestialObject}.
- d) {ReportScore, GroupLead}.

☒ a)☐ b)☐ c)☐ d)

Partially Correct.

Score: 1

Accepted Answers:

a)

d)

5)

2 points

Consider the following relational schema for a university:

- student(roll_no, name, dob)
- dept(deptNo, dName, location)
- project(proj_no, deptNo, roll_no, pName)

What is the type of the key(s) that will be used to uniquely identify an entity of the project relation?

- a) Simple key
- b) Alternate Key
- c) Composite Key
- d) Compound key

☒ a)☐ b)☐ c)☐ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

d)

6)

2 points

Consider the following relational schema for a university:

- student(roll_no, name, dob)
- dept(deptNo, dName, location)
- project(proj_no, deptNo, roll_no, pName)

Identify the correct relational algebraic expression for the following query:

Find the names of students who have selected any project offered by the department "CSE".

- a) $\Pi_{\text{name}}((\text{student} \bowtie \text{project}) \bowtie \Pi_{\text{deptNo}}(\sigma_{\text{dName}='CSE'}(\text{dept})))$
- b) $\Pi_{\text{name}}(\sigma_{\text{dName}='CSE'}(\text{dept} \bowtie \text{project}))$
- c) $\Pi_{\text{name}}(\sigma_{\text{dName}='CSE'}(\text{student} \bowtie \text{dept}) \bowtie (\text{project}))$
- d) $\Pi_{\text{name}}(\text{student} \bowtie (\sigma_{\text{dName}='CSE'}(\text{project})))$

- ☐ a)
- ☒ b)
- ☐ c)
- ☐ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

a)

7)

2 points

Consider the following tables:

R_1		
BOOK_TITLE	AUTHOR_NAME	TOTAL_SOLD_COPIES
COMPUTER NETWORKS	FOROUZAN	15000
DATA STRUCTURES	CORMEN	20000
DATA STRUCTURES	ULLMAN	20000
DBMS	KORTH	15000
MACHINE LEARNING	MITCHELL	18000

R_2		
BOOK_TITLE	AUTHOR_NAME	TOTAL_SOLD_COPIES
COMPILER	ULLMAN	12000
DATA STRUCTURES	CORMEN	20000
DATA STRUCTURES	ULLMAN	20000
NLP	MANNING	12000
OPERATING SYSTEM	GALVIN	25000

Identify the correct operation(s) which will produce the following output from the above two relations.

BOOK_TITLE	AUTHOR_NAME	TOTAL_SOLD_COPIES
COMPUTER NETWORKS	FOROUZAN	15000
COMPILER	ULLMAN	12000
DBMS	KORTH	15000
MACHINE LEARNING	MITCHELL	18000
NLP	MANNING	12000
OPERATING SYSTEM	GALVIN	25000

- a) $R_1 - R_2$
 b) $R_2 - R_1$
 c) $(R_1 \cup R_2) \cap (R_1 \cap R_2)$
 d) $(R_1 - R_2) \cup (R_2 - R_1)$

- ☐ a)
☐ b)
☒ c)
☐ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

d)

8)

2 points

Consider the following instance:

BookDetails				
BOOK_ID	YEAR_PUB	BOOK_TITLE	AUTHOR_NAME	TOTAL_SOLD_COPIES
1001	2010	DBMS	KORTH	15000
1002	2010	OPERATING SYSTEM	GALVIN	25000
1003	2020	COMPILER	ULLMAN	12000
1004	1995	DATA STRUCTURES	CORMEN	20000
1005	1995	DATA STRUCTURES	ULLMAN	20000
1006	1990	COMPUTER NETWORKS	FOROUZAN	15000
1007	2010	MACHINE LEARNING	MITCHELL	18000

Identify the correct operation(s) which produces the following output from the above relation.

BookDetails				
BOOK_ID	YEAR_PUB	BOOK_TITLE	AUTHOR_NAME	TOTAL_SOLD_COPIES
1002	2010	OPERATING SYSTEM	GALVIN	25000
1007	2010	MACHINE LEARNING	MITCHELL	18000

- a) $\Pi_{(YEAR_PUB=2010)} \vee (TOTAL_SOLD_COPIES > 15000) (BookDetails)$
 b) $\Pi_{(YEAR_PUB=2010)} \wedge (TOTAL_SOLD_COPIES > 15000) (BookDetails)$
 c) $\sigma_{(YEAR_PUB=2010)} \vee (TOTAL_SOLD_COPIES > 15000) (BookDetails)$
 d) $\sigma_{(YEAR_PUB=2010)} \wedge (TOTAL_SOLD_COPIES > 15000) (BookDetails)$

- ☐ a)
☐ b)
☒ c)
☐ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

d)

9)

2 points

Consider the following instance:

BookDetails				
BOOK_ID	YEAR_PUB	BOOK_TITLE	AUTHOR_NAME	TOTAL_SOLD_COPIES
1001	2010	DBMS	KORTH	15000
1002	2010	OPERATING SYSTEM	GALVIN	25000
1003	2020	COMPILER	ULLMAN	12000
1004	1995	DATA STRUCTURES	CORMEN	20000
1005	1995	DATA STRUCTURES	ULLMAN	20000
1006	1990	COMPUTER NETWORKS	FOROUZAN	15000
1007	2010	MACHINE LEARNING	MITCHELL	18000

Identify the correct output(s) which will be produced by the following relational expression.

$\Pi_{\text{BOOK_TITLE}}(\sigma_{\text{TOTAL_SOLD_COPIES} > 18000}(\text{BookDetails}))$

a)

BOOK_TITLE
OPERATING SYSTEM
DATA STRUCTURES
DATA STRUCTURES

b)

BOOK_TITLE
OPERATING SYSTEM
DATA STRUCTURES

c)

BOOK_ID	YEAR_PUB	BOOK_TITLE	AUTHOR_NAME	TOTAL_SOLD_COPIES
1002	2010	OPERATING SYSTEM	GALVIN	25000
1004	1995	DATA STRUCTURES	CORMEN	20000
1005	1995	DATA STRUCTURES	ULLMAN	20000

d)

BOOK_ID	YEAR_PUB	BOOK_TITLE	AUTHOR_NAME	TOTAL_SOLD_COPIES
1002	2010	OPERATING SYSTEM	GALVIN	25000
1004	1995	DATA STRUCTURES	CORMEN	20000

☐ a)

☐ b)

☒ c)

☐ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

b)

10)

2 points

Which of the following can be a candidate key for the following instance?

BookDetails				
BOOK_ID	YEAR_PUB	BOOK_TITLE	AUTHOR_NAME	TOTAL_SOLD_COPIES
1001	2010	DBMS	KORTH	15000
1002	2010	OPERATING SYSTEM	GALVIN	25000
1003	2020	COMPILER	ULLMAN	12000
1004	1995	DATA STRUCTURES	CORMEN	20000
1005	1995	DATA STRUCTURES	ULLMAN	20000
1006	1990	COMPUTER NETWORKS	FOROUZAN	15000
1007	2010	MACHINE LEARNING	MITCHELL	18000

- a) {BOOK_ID, YEAR_PUB}
- b) {BOOK_ID, BOOK_TITLE}
- c) {BOOK_TITLE, AUTHOR_NAME}
- d) {BOOK_ID}

- ☐ a)
- ☒ b)
- ☒ c)
- ☐ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

- c)
- d)