

FUTURE VISION BIE

One Stop for All Study Materials
& Lab Programs



Future Vision

By K B Hemanth Raj

Scan the QR Code to Visit the Web Page



Or

Visit : <https://hemanthrajhemu.github.io>

Gain Access to All Study Materials according to VTU,
Currently for CSE – Computer Science Engineering...

Join Telegram to get Instant Updates: https://bit.ly/VTU_TELEGRAM

Contact: MAIL: futurevisionbie@gmail.com

INSTAGRAM: www.instagram.com/hemanthraj_hemu/

INSTAGRAM: www.instagram.com/futurevisionbie/

WHATSAPP SHARE: <https://bit.ly/FVBIESHARE>

DATABASE MANAGEMENT SYSTEM

[As per Choice Based Credit System (CBCS) scheme]

(Effective from the academic year 2017 -2018)

SEMESTER – V

Subject Code **17CS53**

IA Marks **40**

Number of Lecture Hours/Week **04**

Exam Marks **60**

These Questions are being framed for helping the students in the “FINAL Exams” Only (Remember for Internals the Question Paper is set by your respective teachers). Questions may be repeated, just to show students how VTU can frame Questions.

- ADMIN

Module 4

-
1. Explain the informal design guidelines used as measures to determine the quality of relation schema design. (8-Marks) (7a) (Dec.2017/Jan.2018)
 2. Define Normal form. Explain 1NF,2NF and 3NF with suitable examples for each. (8-Marks) (7b) (Dec.2017/Jan.2018)
 3. Define Minimal cover. Write an algorithm for finding a minimal cover F for a set of functional dependencies E. Find the minimal cover for the given set of FDs be:

E : {B->A, D->A, AB->D} (8-Marks)
(Dec.2017/Jan.2018)

4. Consider the universal relation $R = \{ A, B, C, D, E, F, G, H, I, J \}$ and the set of functional dependencies

$F = \{ \{A, B\} \rightarrow \{C\}, \{A\} \rightarrow \{D, E\}, \{B\} \rightarrow \{F\}, \{F\} \rightarrow \{G, H\}, \{D\} \rightarrow \{I, J\} \}$.

Determine whether each decomposition has the lossless join property with respect to F .

$D_1 = \{ R_1, R_2, R_3 \}$; $R_1 = \{A, B, C, D, E\}$; $R_2 = \{B, F, G, H\}$; $R_3 = \{D, I, J\}$. (8-Marks) (8b) (Dec.2017/Jan.2018)

5. Discuss insertion, deletion and modification anomalies. Why are they considered bad? Illustrate with examples. (4-Marks) (7a) (June/July 2018)

6. Define Multivalued dependency. Explain fourth normal form, with an example. (6-Marks) (7b) (June/July 2018)

7. Consider the Universal relation $R = \{A, B, C, D, E, F, G, H, I, J\}$ and the set of functional dependencies $F = \{ \{A, B\} \rightarrow \{C\}, \{A\} \rightarrow \{D, E\}, \{B\} \rightarrow \{F\}, \{F\} \rightarrow \{G, H\}, \{D\} \rightarrow \{I, J\} \}$. What is key of R ? Decompose R into 2NF and then 3NF relations. (6-Marks) (7c) (June/July 2018)

8. Define Non – additive join property of a decomposition and write an algorithm of testing for non – additive join property. (4-Marks) (8a) (June/July 2018)

9. A relation $R(A, C, D, E, H)$ satisfies the following FDs: $A \rightarrow C$, $AC \rightarrow D$, $E \rightarrow AD$, $E \rightarrow H$ Find the Canonical cover for this set of FD's.

Consider two set of functional dependencies:

$F = \{A \rightarrow C, AC \rightarrow D, E \rightarrow AD, E \rightarrow H\}$ and $G = \{A \rightarrow CD, E \rightarrow AH\}$.
Are they equivalent? (6-Marks) (8b)
(June/July 2018)

10. What do you mean by closure of attribute? Write an algorithm to find closure of attribute. (6-Marks) (7a)
(Dec.2018/Jan.2019)

11. Explain any two informal quality measures employed for a relation schema design. (4-Marks)
(7b) (Dec.2018/Jan.2019)

12. Given below are two sets of FDs for a relation $R(A, B, C, D, E)$. Are they equivalent?

i) $A \rightarrow B, AB \rightarrow C, D \rightarrow AC, D \rightarrow E$.

ii) $A \rightarrow BC, D \rightarrow AE$. (6-Marks)

(7c) (Dec.2018/Jan.2019)

13. What do you mean by multivalued dependency? Explain the 4NF with example. (6-Marks) (8a)
(Dec.2018/Jan.2019)

14. Suggest and explain three different techniques to achieve 4NF using suitable example. (4-Marks) (8b)
(Dec.2018/Jan.2019)

15. Consider the following relation for CARSALE (CAR-NO, Date-Sold, Salesman_No, Commission, Discount)

Assume a car can be sold by multiple salesman and hence primary key is $\{CAR_No, Salesman_No\}$

Additional dependencies are

Date_Sold \rightarrow Discount

Salesman_No \rightarrow Commission

- i) Is this relation in 1NF, 2NF or 3NF? Why or why not?
- ii) How would you normalize this completely? (6-Marks) (Dec.2018/Jan.2019)
16. What is the need for normalization? Explain the 1NF, 2NF, and 3NF with examples. (14-Marks) (6a) (June-July.2018 | 10-scheme)
17. Explain the concept of BCNF. (6-Marks) (6b) (June-July.2018 | 10-scheme)
18. Define multivalued dependency and explain 4NF with an examples. (12-Marks) (7a) (June-July.2018 | 10-scheme)
19. Discuss the null value and dangling tuple problems. (8-Marks) (7b) (June-July.2018 | 10-scheme)
20. Explain the informal Design guidelines for relation schemas. (10-Marks) (6a) (Dec.2017/Jan.2018 | 10-scheme)
21. What is functional dependency? Write an algorithm to find the minimal cover for a set of dependencies? Calculate the minimal cover of $F = \{ A \rightarrow BC, B \rightarrow C, AB \rightarrow D \}$? (10-Marks) (6b) (Dec.2017/Jan.2018 | 10-scheme)
22. Define multivalued dependency. Explain 4NF with an example. (10-Marks) (7a) (Dec.2017/Jan.2018 | 10-scheme)
23. Let $R = \{ Ssn, Fname, Pnumber, Pname, Plocation, hours \}$ and $D = \{ R1, R2, R3 \}$, where
 $R1 = EMP = \{ Ssn, Fname \}$
 $R2 = PROJ = \{ Pnumber, Pname, Plocation \}$
 $R3 = WORKS_ON = \{ Ssn, Pnumber, hours \}$
The following functional dependencies hold on relation R.

$F = \{Ssn \rightarrow Ename : Pnumber \rightarrow \{Pname, Plocation\} : \{Ssn, Pnumber\} \rightarrow hours \}$

Prove that the above decomposition of relation R has the lossless join property. (10-Marks) (7b) (Dec.2017/Jan.2018 | 10-scheme)

24. Explain update anomalies with examples. (5-Marks) (6a) (Dec.2016/Jan.2017 | 10-scheme)

25. What is a functional dependency? List the conditions for a set of functional dependencies to be minimal. (5-Marks) (6b) (Dec.2016/Jan.2017 | 10-scheme)

26. Consider the relation R(A, B, C, D, E, F) and the functional dependencies $A \rightarrow B$, $C \rightarrow DF$, $AC \rightarrow E$, $D \rightarrow F$. What is the primary key of this relation R? What is its highest normal form? Preserving the dependency, decompose R into third normal form. (10-Marks) (6c) (Dec.2016/Jan.2017 | 10-scheme)

27. Explain properties of relational decomposition. (5-Marks) (7a) (Dec.2016/Jan.2017 | 10-scheme)

28. Which normal form specifies multivalued functional dependency? Explain it with examples. (10-Marks) (7b) (Dec.2016/Jan.2017 | 10-scheme)

29. Define inclusion dependency, and write the inference rules for it. (5-Marks) (7c) (Dec.2016/Jan.2017 | 10-scheme)

30. State the informal guidelines for relational schema design. (6-Marks) (6a) (June/July.2017 | 10-scheme)

31. Define First. Second and Third normal forms by taking an examples. (8-Marks) (6b) (June/July.2017 | 10-scheme)

32. What are the inference rules on FDs? How they are useful? Explain with examples. (6-Marks) (6c) (June/July.2017 | 10-scheme)
33. Explain the properties of Relational Decomposition. (6-Marks) (7a) (June/July.2017 | 10-scheme)
34. Define Multivalued dependency. Explain 4NF with an example. (8-Marks) (7b) (June/July.2017 | 10-scheme)
35. Consider $R = \{A, B, C, D, E, F\}$
FDS $\{ AB \rightarrow CD : D \rightarrow CF, B \rightarrow F, BYD \rightarrow F, D \rightarrow F, DE \rightarrow F \}$
- What is the key of R? Find an irreducible cover for this set of FD's. (6-Marks) (7c) (June/July.2017 | 10-scheme)

**ANSWER SCRIP FOR THESE QUESTIONS
WILL BE UPLOADED ASAP**

Visit:

<https://hemanthrajhemu.github.io/AnswerScript>

THANK YOU

Join Telegram Channel to receive Instant Updates..

<https://t.me/joinchat/AAAAAFTtp8kuvCHALxuMaQ>
