

FACULTY OF ENGINEERING, UNIVERSITY OF LUCKNOW
Mid-Term Test - II

B.TECH. SEMESTER - V, 2023-24
Branch: CSE/CSE-AI

Student's Roll No.....

Subject Code: CS-502

Subject Title: Database Management Concepts

Time: 1 Hrs.

Full Marks: 20

Note: Attempt questions from each section as per instructions. The symbols have their usual meaning.

SECTION A

1. *Attempt all parts of this question. Each part carries 1 mark. (1 x 5 = 5)*

- Define Transaction.
- What do you mean by dependency preserving?
- What is functional dependency?
- Define Armstrong Axioms.
- Define trigger.

SECTION B

Attempt any THREE questions of the following. Each question carries 5 marks. (5 x 3 = 15)

- Explain second and third normal form in detail with suitable example.
- What is lossless join decomposition? Is the decomposition of relational schema $R(A, B, C, D, E)$ with functional dependencies $\{A \rightarrow BC, C \rightarrow DE\}$ into $R_1(A, B, C)$ and $R_2(C, D, E)$ is lossless?
- Explain various fundamental operations used in relational algebra with suitable example.
- Relation R has eight attributes $ABCDEFGH$. Fields of R contain only atomic values. $F = \{CH \rightarrow G, \textcircled{A} \rightarrow BC, B \rightarrow CFH, E \rightarrow A, F \rightarrow EG\}$ is a set of functional dependencies (FDs) so that F^+ is exactly the set of FDs that hold for R . How many candidate keys does the relation R have? Also show whether the relationship is in 2NF or not.

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Mid-Term Test - II
B.TECH. SEMESTER - V, 2023-24
Branch: CSE/AI (CSE)

Student's Roll No.

Subject Code: CS-503

Subject Title: Software Engineering

Time: 1 Hrs.

Full Marks: 20

Note: Attempt questions from each section as per instructions. The symbols have their usual meaning.

SECTION A

1. Attempt all parts of this question. Each part carries 1 mark. (1 x 5 = 5)

- Define Data Flow Diagram.
- What do you understand by feasibility study?
- Compare composite attribute and multivalued attribute in ER diagram.
- Explain Information modeling.
- Define SQA

SECTION B

Attempt any THREE questions of the following. Each question carries 5 marks. (5 x 3 = 15)

- Explain Requirement Engineering Process in detail.
- Elaborate ISO 9000.
- Explain SEI-CMM model in detail.
- Write about Spiral Model in SDLC using appropriate diagram.

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Mid-Term Test - II
B.TECH. SEMESTER - V, 2023-24
Branch: CSE (AI)

Student's Roll No.....

Subject Code: AI-501 Subject Title: Fundamental of Data Analytics

Time: 1 Hrs.

Full Marks: 20

Note: Attempt questions from each section as per instructions.

SECTION A

1. Attempt all parts of this question. Each part carries 1 mark. (1 x 5 = 5)

- Define Data Profiling in data analytics.
- Write Pearson's correlation coefficient formula.
- Define the terminology sample mean and population mean used in statistics.
- What is the probability of getting a sum of 5 or 8 when 2 dice are rolled once?
- Define the term bias and variance in data analytics.

SECTION B

Attempt any THREE questions of the following. Each question carries 5 marks. (5 x 3 = 15)

- Explain the Bayes' theorem of probability in details.
- Explain normal distribution graph with respect to mean, median and mode.
- The correlation coefficient of a set of data is found to be 0.8. The standard deviation of data set x (σ_x) = 1, and standard deviation of data set y (σ_y) = 1.4. Find out the covariance of the data.
- Suppose the test for HIV is 99% accurate in both directions and 0.3% of the population is HIV positive. If someone tests positive, what is the probability they actually are HIV positive?

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Mid-Term Test - II
B.TECH. SEMESTER - V, 2023-24
Branch: CS, AI

Student's Roll No.

Subject Code: CS-504 Subject Title: Web Technology

Time: 1 Hrs.

Full Marks: 20

Note: Attempt questions from each section as per instructions. The symbols have their usual meaning.

SECTION A

1. Attempt all parts of this question. Each part carries 1 mark. (1 x 5 = 5)

- Define XML
- What is a markup language?
- What is the use of <a> tag?
- Mention any 2 attributes of tag.
- What is the difference between DOM and SAX XML parsers?

SECTION B

Attempt any THREE questions of the following. Each question carries 5 marks. (5 x 3 = 15)

- Differentiate between XML and HTML with example.
- Explain XML DTD along with its types.
- Design a static form using at least 3 different input types.
- What is XML schema? Explain.

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Mid-Term Test - II
B.TECH. SEMESTER - V, 2023-24
Branch: CSE/AI

Student's Roll No.

Subject Code: CS-505

Time: 1 Hrs.

Subject Title: Compiler Design
Full Marks: 20

Note: Attempt questions from each section as per instructions. The symbols have their usual meaning.

SECTION A

1. Attempt all parts of this question. Each part carries 1 mark. (1 x 5 = 5)

- Define augmented Grammar?
- Mention the types of LR parser?
- Differentiate between top down parsers
- Explain bottom up parsing technique?
- Define Predictive parser.

SECTION B

Attempt any THREE questions of the following. Each question carries 5 marks. (5 x 3 = 15)

- Discuss Left recursion and left factoring with example.
- State and explain rules to compute first and follow functions.
- Construct State diagram for given grammar
 $E \rightarrow E+E / E * E / (E) / id$
- What is left most derivation and right most derivation.