Generate a scribe for exam reference material from the given lecture slides. The scribe must reconstruct what is taught in the lecture slides so that a student can rely on the scribe alone for revision for a closed books examination.

Use only the given material that is the lecture slides and no extra content. The scribe should not introduce any new concepts, interpretation, explanations, examples, solved problems, proofs or derivations. Do not exceed the scope of the given content in any way.

Using such an approach, an attempt will be made to write the scribe where the reasoning is also explicit within the scribe itself while writing it in such a way that all the definitions, assumptions, notations, derivations, proofs, etc., are reasoned step by step as they are found within the lecture material itself. The reasoning for all this should emerge only from the given material itself.

The Scribe must include step by step proofs and derivations, with examples given in the slides only. The scribe should be structured in a way that all logical dependencies between the ideas have to be clear so that it reflects and follows the flow of the lecture.

The lecture must maintain formal academic tone without any creative writing or commentary on the material. The scribe should be clearly structured in a section sub-section format and with bullet points highlighting the important points and making it clear for revision.

The scribe should avoid any kind of summaries interpretations, explanations and but should contain all examples, questions and proofs and derivations and definitions provided in the lecture slides written in an academic format.

Do not explain how the scribe is written. Do not comment on the process. No additions are necessary, as the material is already provided in the context given above. The final output should resemble a lecture scribe that is intended for direct submission

CSE400 – Project Kickoff

Weightage: 30%

1. Project Team Formation

- **Deadline:**
  - 17th January 2026, Saturday – End of Day

2. Project Execution Guidelines

- **Overall Weightage:**
  - 30%
- **Major Milestones:**
  - Total of **6 milestones (M1–M6)**
  - **One submission per group per milestone**
- **Milestone Components:**
  1. **Concept Evolution Maps**
  2. **Scribe: Process & Decision-Making**
     - Decision Logs (Why X over Y?)
     - Constraints
     - Alternatives considered
     - Final decision
     - Evidence used
     - Trade-off matrices (Cost vs. Performance vs. Risk)
  3. **Multimodal Artifacts (Video / Audio / Visual)**
     - Think-Aloud Videos
     - One-Minute Insight Videos
     - Project Demo
  4. **Question-Driven Artifacts**
     - Probing depth of understanding
  5. **Collaboration & Team Dynamics Artifacts**
- **Deliverables:**

- Codes, reports, videos, etc., as and when specified
- **Team Assessment:**
  - Before mid-semester
  - After mid-semester
- **Project Viva and Final Submission:**
  - Towards the end of the course □ L3

---

3. Project Kickstart and Milestone Structure

M1: Kickstart
- Team formation
- Area identification
- Background
- Motivation
- Problem formulation

M2: Mathematical Modeling
- Mathematical modelling of the selected problem in **any domain**
- Topics include:
  - Random Variables (RV)
  - PMF / PDF
  - CDF
  - Multivariate Random Variables
  - Joint PMF / PDF / CDF

M3: Coding
- Simulation
- Computation

M4: Inference
- Choose a randomized algorithm
- Understand the algorithm
- Code the algorithm

M5: Randomized Algorithms
- Apply the randomized algorithm to the domain problem
- Obtain results
- New inferences in comparison to deterministic algorithms

M6: Derivation and Analysis

- Derive bounds
- Perform analysis
- Compile and submit final deliverables ▢ L3

---

4. Submission #1 – Concept Evolution Maps

- **Tools:**
  - Miro Concept Map Tool
  - diagrams.net (draw.io) ▢ L3

---

5. Submission #2 – Scribe: Learning Reflection Logs

- **Tools:**
  - Strictly specified by the course
- **Types of Scribes:**
  - Lecture Scribes
  - Project Scribes
- **Lecture Scribes:**
  - Every lecture: 2 groups assigned
  - Reflect lecture content
  - Include additional examples from foreign textbooks
  - Minimum length: 8–10 pages
- **Project Scribe Content:**
  - Process and decision-making
  - Decision logs (Why X over Y?)
  - Constraints
  - Alternatives considered
  - Final decision
  - Evidence used
  - Trade-off matrices (Cost vs. Performance vs. Risk)
- **Submission Frequency:**
  - Total of 6 submissions
  - Bi-weekly mode
  - Each submission answers specific project-related questions ▢ L3

---

6. Submission #3 – Multimodal Artifacts

- **Formats:**
  - Video / Audio / Visual
- **Expectations:**
  - Content quality prioritized over editing skills
- **Requirements:**
  - One video per milestone
  - Duration: 10–15 minutes
  - Explanation of milestone work
  - Coding simulation if applicable
- **Presentation Tools:**
  - PowerPoint or Google Slides
  - Any screen-recording tool
- **Artifact Types:**
  - Think-Aloud Videos
  - One-Minute Insight Videos
  - Project Demo ⬜ L3

---

7. Introduction to UGRP (2026–2027)

- **Founder Referenced:**
  - Dr. BJ Fogg
  - Founder of the Behavior Design Lab, Stanford University

---

8. Rationale for UGRP

- Reference to:
  - Tranquillo, Joe. *"The T-shaped Engineer"*, Journal of Engineering Education Transformations, 30(4), 2017
- **IBM Concept of the T-Shaped Individual:**
  - Vertical bar: Depth in a single technical discipline
  - Horizontal bar: Ability to apply knowledge across disciplines and work with others
    ⬜ L3

---

9. Philosophy for UGRP

- Multidisciplinary:
  - Arts
  - Science
  - Management
- Experiential Learning
- Research Driven
- **4D Model:**
  - Discover
  - Design
  - Develop
  - Deliver
- **Breadth Areas:**
  - CS and CSE
  - Data Science and Applied Artificial Intelligence
  - Modern Computer System Design (Hardware and Software)
  - Networks and IoT / IoBNT / IoV   🗋 L3

---

10. Current Industry and Research Activities

- 5G-enabled Intelligent Transportation Systems (ITS) Testbed in Gujarat
- AI-based ITS solutions
- Ongoing DST-GUJCOST Project
- Components include:
  - V2X communication between OBU and RSU
  - SDK testing
  - Sensor data collection
  - In-car dashboard development
- Research areas:
  - Deep learning-based crash prevention
  - Deep reinforcement learning-based smart signaling
  - mmWave beam prediction
  - C-V2X and Wi-Fi coexistence frameworks   🗋 L3

---

11. International Bilateral Collaborations

- Collaborators from:
  - University of Liverpool

- University of Manchester
- A*STAR Singapore
- Boston College
- Monash University
- UTAR Malaysia
- University of Oulu
- Tokyo University of Agriculture and Technology
- Qatar University
- University of York
- Nanyang Technological University L3

12. MICxN Research Lab – Alumni and Outcomes

- Alumni working at:
  - Amazon
  - Google
  - Intel
  - American Express
  - EXL
  - LexisNexis Risk Solutions
  - Simplify Healthcare
- Publications in:
  - IEEE PIMRC
  - IEEE Transactions on Vehicular Technology
  - IEEE Access L3

13. Undergraduate Research Programme Outcomes

- Accepted papers at:
  - COMSNETS
  - NCC
- Awards:
  - Best Paper Award
  - Best UG Presentation Award

14. MICxN Research Lab – Current Students

- UG Thesis Scholars
- BTEP Students
- Research areas include:
  - Spectrum sensing
  - O-RAN
  - 6G ISAC
  - UAV
  - Wi-Fi sensing
  - Antenna design 📄 L3

---

15. Conclusion

- Open Q & A Session
- Contact:
  - dhaval.patel@ahduni.edu.in ↗ 📄 L3

Sources