ELECTRONIC EXAMINATION

By

Hitham Haidar
Open University of Sudan (OUS)

Issues

Exam Paper

- Exam File
  - Flat File
  - Structured File
  - Semi-Structured File

Exam

- #Questions
  - Selection
  - Measurement
  - Distribution
  - Security
  - Answer Collection
  - Marking

Questions

- Bank of Questions
  - Time
    - EAT
  - Complexity
    - Category
  - Throughput
    - Partitions
- Richness
  - Types

Electronic Examination

- Questions   =>   Bank of Questions
- Selection Algorithm   =>   Exam
- Distribution   =>   E-Exam
- Do Marking   =>   Results

Question Selection Algorithm

- Measurement:
    - Time
    - Complexity
    - Throughput
    - Richness
- Metrics:
    - Type
    - Category
    - Partition
    - EATS (for Homey)
    - LLT
    - ACP

Question Selection Algorithm

- **Measurement:**
  - Time
  - Complexity
  - Throughput
  - Richness
- **Metrics:**
  - Type
  - Category
  - Partition
  - EATS (for Homey)
  - LLT
  - ACP

- **Type:**
  1. True/False Question   => TFQ
  2. Multi-Choice Question   => MCQ
  3. Fill-In-Blanks Question   => FBQ
  4. Matching Question   => MTQ
  5. Short-Answer Question   => SAQ
  6. Essay Question   => ESQ

Question Selection Algorithm

- Measurement:
  - Time
  - Complexity
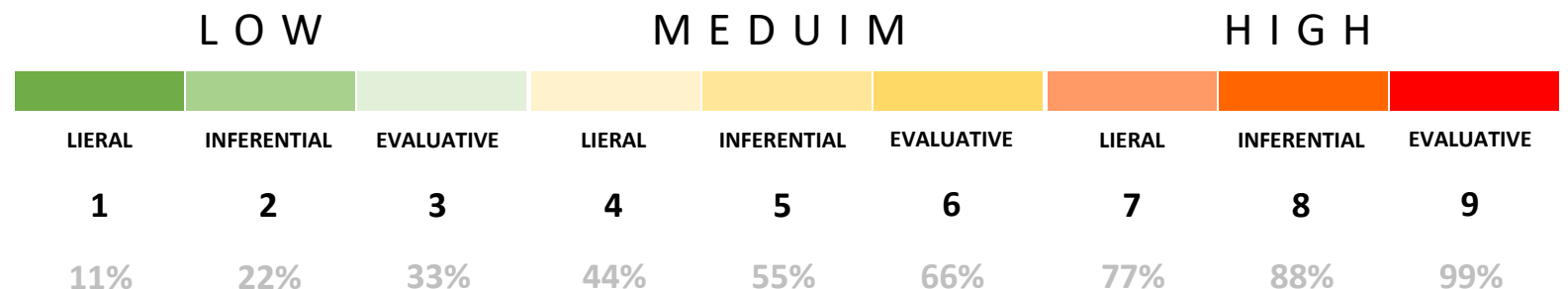 - Throughput
  - Richness

- Metrics:
  - Type
  - Category
  - Partition
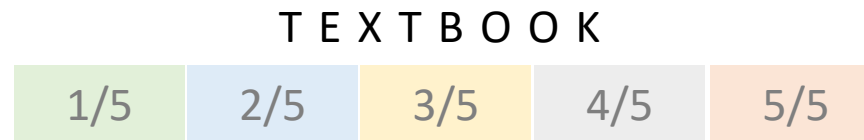 - EATS (for Homey)
  - LLT
  - ACP

- Category:
  - **Literal**: the question have responses that are directly stated in the text.
  - **Inferential**: the question have responses that are indirectly stated, induced, or require other information.
  - **Evaluative**: the question require the reader to formulate a response based on their opinion.

- Complexity Schema:

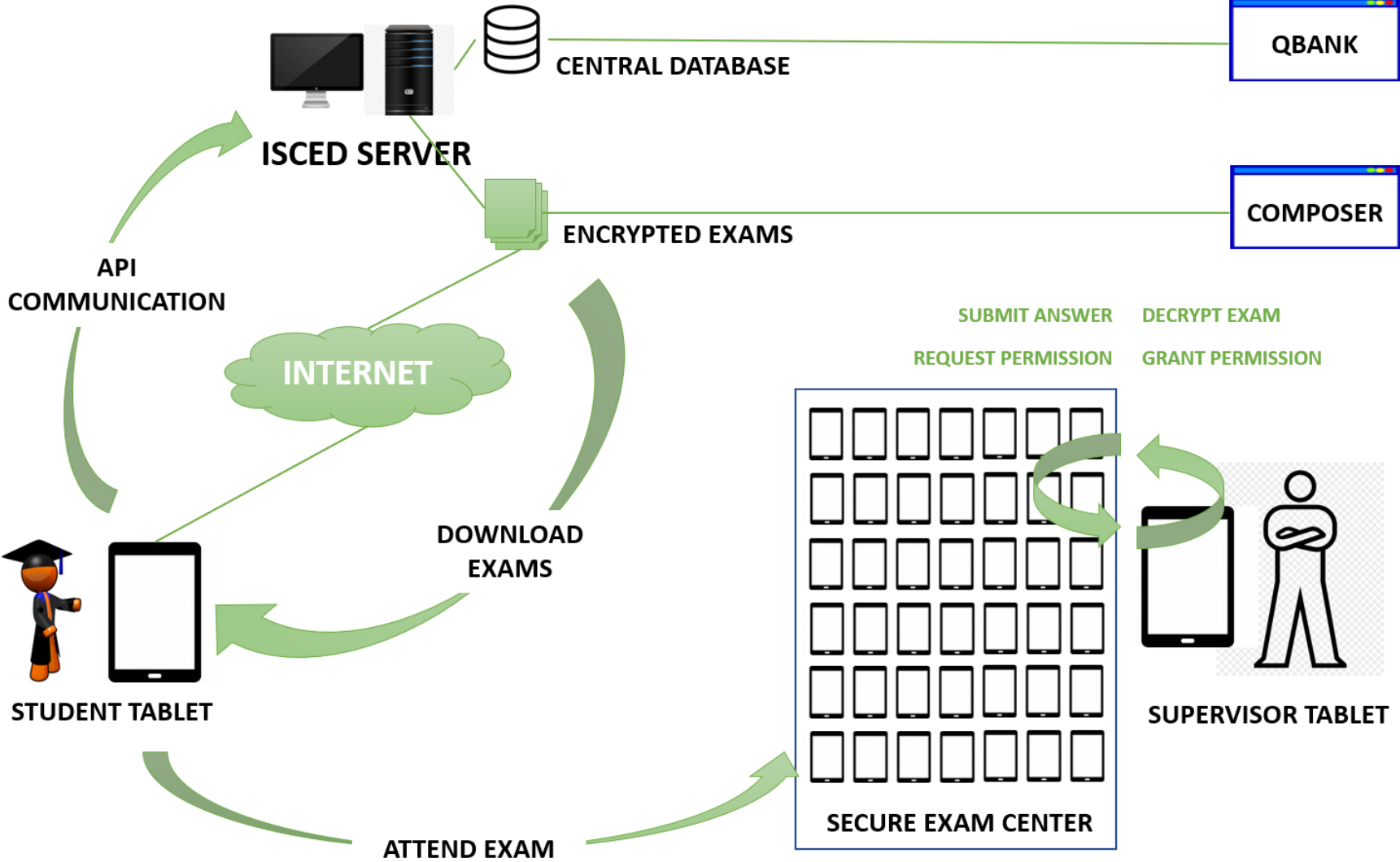| L O W			M E D U I M			H I G H		
LIERAL	INFERENTIAL	EVALUATIVE	LIERAL	INFERENTIAL	EVALUATIVE	LIERAL	INFERENTIAL	EVALUATIVE
1	2	3	4	5	6	7	8	9
11%	22%	33%	44%	55%	66%	77%	88%	99%

Question Selection Algorithm
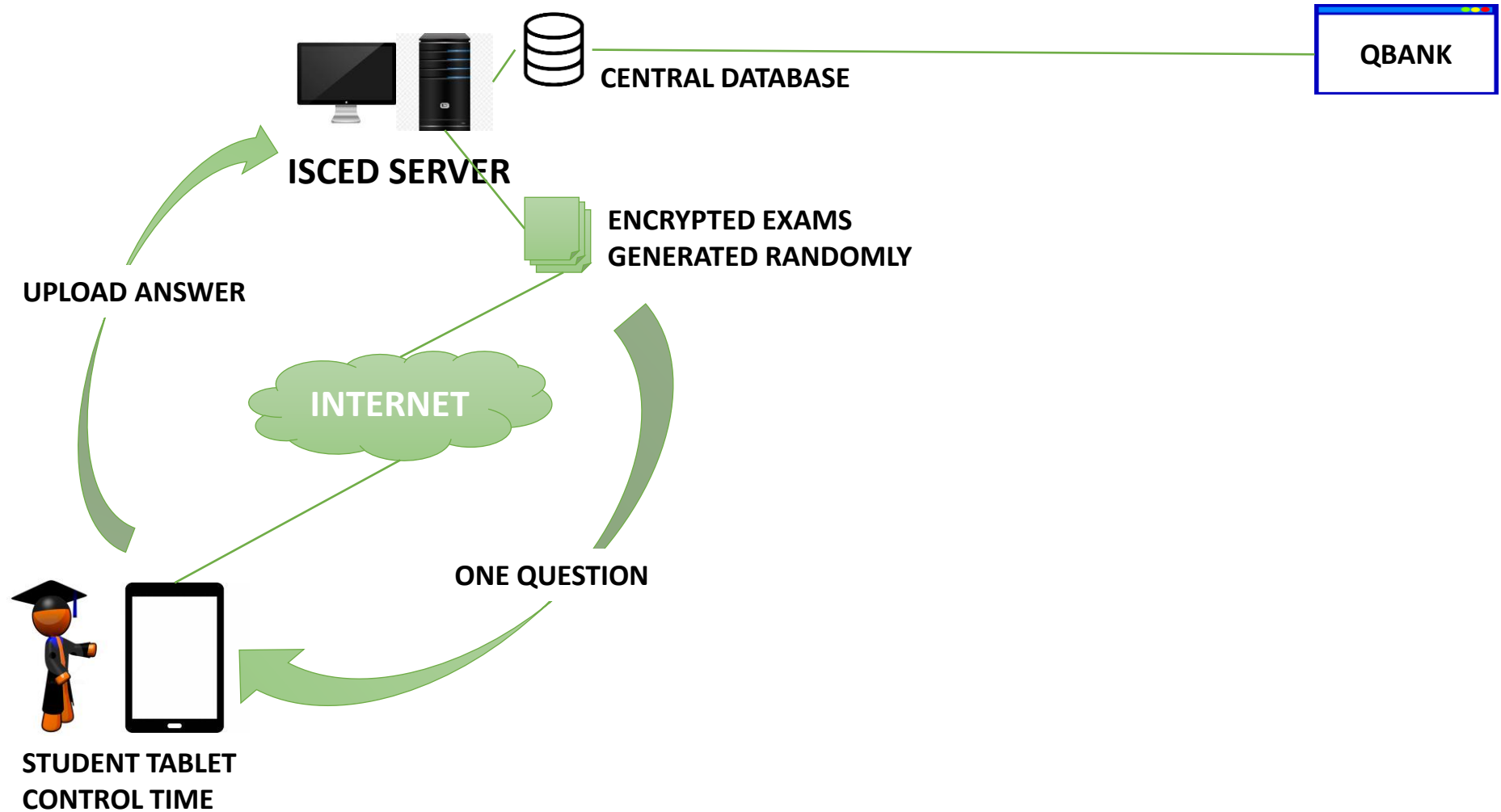
- Measurement:
  - Time
  - Complexity
  - Throughput
  - Richness

- Metrics:
  - Type
  - Category
  - Partition
  - EATS (for Homey)
  - LLT
  - ACP

- Partition:
  - Divide the textbook to five parts,
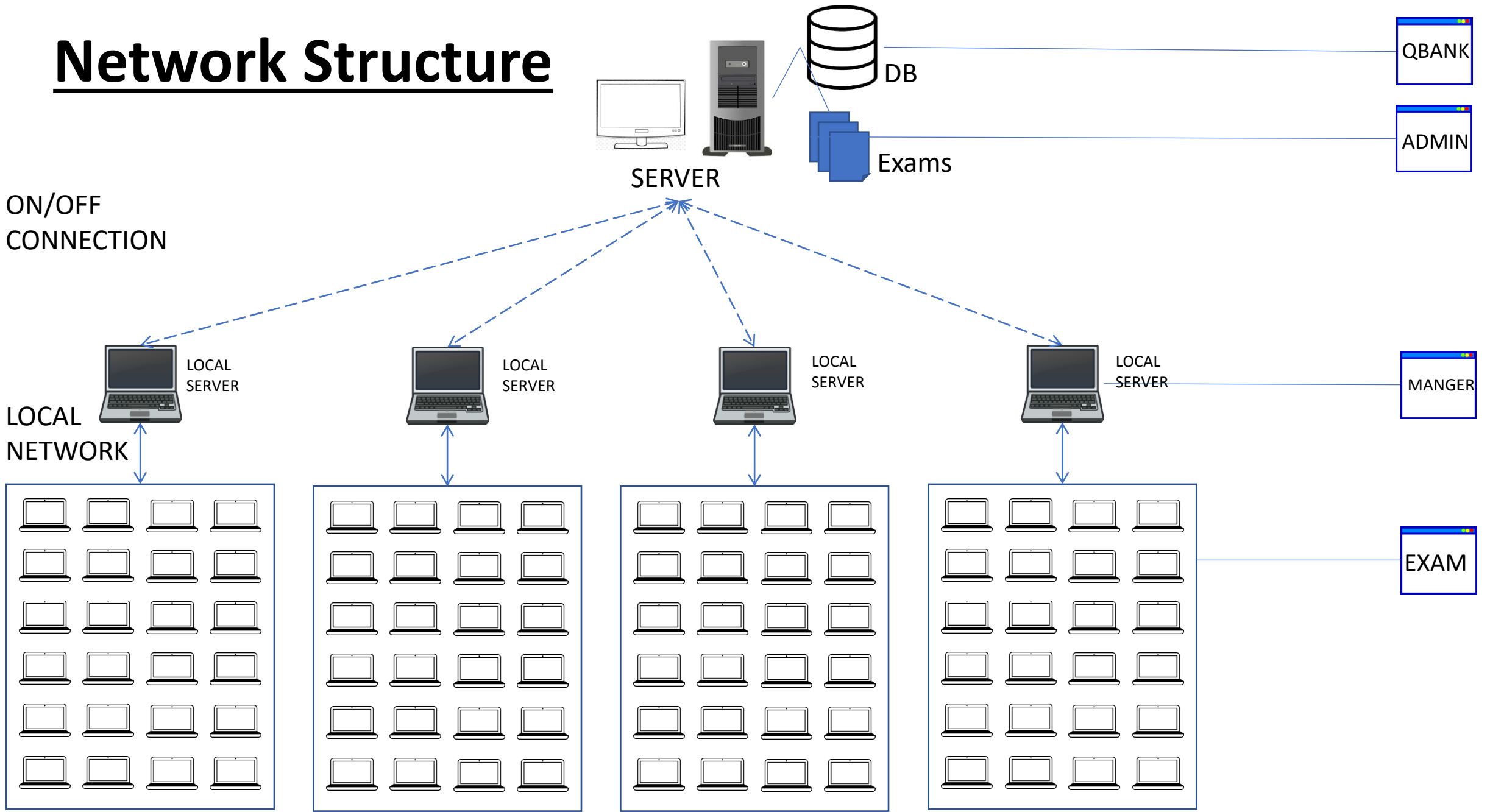 - From which part question were extracted

T E X T B O O K

1/5	2/5	3/5	4/5	5/5

Distribution

QBANK

CENTRAL DATABASE

ISCED SERVER

COMPOSER

ENCRYPTED EXAMS

API
COMMUNICATION

SUBMIT ANSWER   DECRYPT EXAM

REQUEST PERMISSION   GRANT PERMISSION

INTERNET

DOWNLOAD
EXAMS

STUDENT TABLET

SECURE EXAM CENTER

SUPERVISOR TABLET

ATTEND EXAM

Distribution (Homey)

Network Structure

SERVER

DB

Exams

QBANK

ADMIN

ON/OFF
CONNECTION

LOCAL
SERVER

LOCAL
SERVER

LOCAL
SERVER
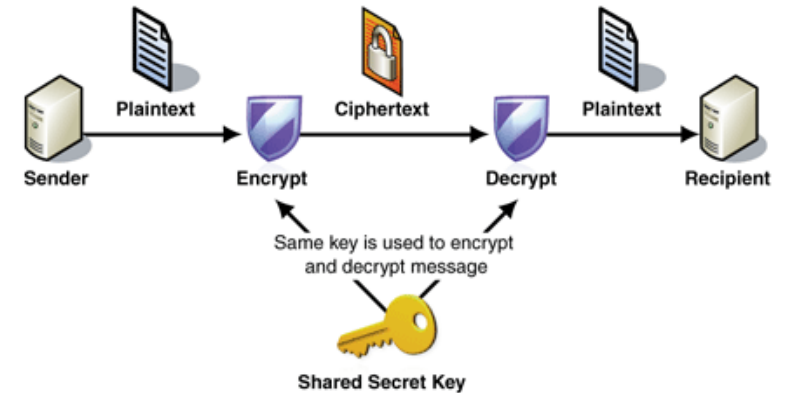
LOCAL
SERVER

MANGER

LOCAL
NETWORK

EXAM

Peer Review

- One essay question for each unit of the textbook
- Student should write an article no more that 400 words and not less that 100 words
- 20% homework and 80% final exam
- Plagiarism Check algorithm apply to ensure there is no similarity more that 50%
- Once submit student able to review other 10 articles written by other students and give a review points between 0 to 10 marks
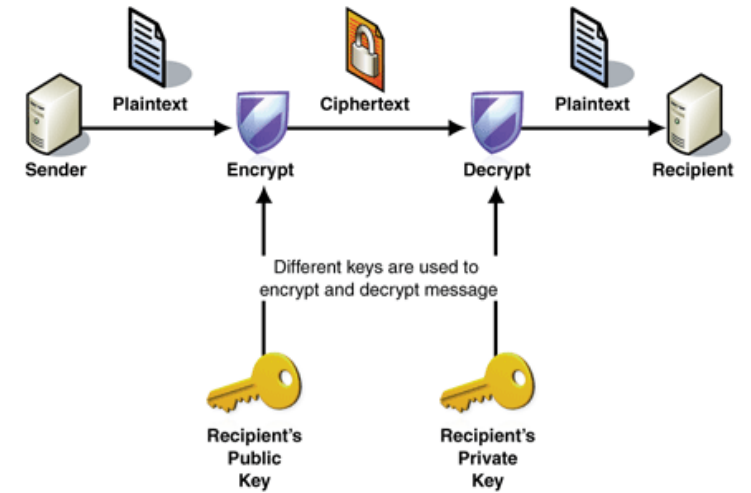- System send each article to 10 other students and take the average

Cryptographies

- the conversion of information from a readable state to apparent nonsense.
- The originator of an encrypted message shared the decoding technique needed to recover the original information only with intended recipients, thereby precluding unwanted persons from doing the same.
- Modern cryptography is heavily based on mathematical theory and computer science practice.
- **Symmetric-key cryptography:** refers to encryption methods in which both the sender and receiver share the same key.
- **Public-key cryptography:** in which two different but mathematically related keys are used—a *public* key and a *private* key.

Same key encryption

Plaintext → Ciphertext → Plaintext

Sender → Encrypt → Decrypt → Recipient

Same key is used to encrypt and decrypt message

Shared Secret Key

Double key encryption

Plaintext → Ciphertext → Plaintext

Sender → Encrypt → Decrypt → Recipient

Different keys are used to encrypt and decrypt message

Recipient's Public Key   Recipient's Private Key

Marking

- TFQ => Automatic
- MCQ => Automatic
- FBQ => Automatic
- MTQ => Automatic
- SAQ => Manual/Automatic
- ESQ => Manual