



May 1, 2026

unit-1-problem-solving — Overview

Unit 1 — Table of Contents

Syllabus Coverage

- 1.1 Introduction & Steps for Problem Solving
- 1.2 Algorithm: Definition, Characteristics & Examples
- 1.3 Flowchart: Symbols, Rules & Examples
- 1.4 Flowchart vs Algorithm
- 1.5 Pseudocode
- 1.6 GTU PYQ Practice

Weightage: $\approx 10\%$ (10 marks) | Hours: 5

Topic 1: Key Concepts

Key Topics

- Clear step-by-step solution
- Language-independent
- Easy to convert to code

Key Definition

Clear step-by-step solution

Source Coverage

Frames 3–6 (reference for further study)

Topic 2: Key Concepts

Key Topics

- Easy to understand — language-independent
- Can be directly converted to any programming language
- Helps to detect and fix logical errors before coding

Key Definition

Easy to understand — language-independent

Source Coverage

Frames 7–11 (reference for further study)

Topic 3: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 12–16 (reference for further study)

Topic 4: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 17–21 (reference for further study)

Topic 5: Key Concepts

Key Topics

- Not a real programming language — no strict syntax
- Uses keywords like IF, ELSE, WHILE, FOR, PRINT
- Closer to a programming language than plain English

Key Definition

Not a real programming language — no strict syntax

Source Coverage

Frames 22–26 (reference for further study)

Topic 6: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 27–31 (reference for further study)

Topic 7: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 32–35 (reference for further study)

Topic 8: Key Concepts

Key Topics

- Provides a visual overview of the solution before coding
- Easier to communicate the logic to others
- Helps in identifying bottlenecks and logical errors

Key Definition

Provides a visual overview of the solution before coding

Source Coverage

Frames 36–40 (reference for further study)

Topic 9: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 41–45 (reference for further study)

Topic 10: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 46–50 (reference for further study)

Topic 11: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 51–55 (reference for further study)

Topic 12: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 56–60 (reference for further study)

Unit Summary & Revision

Next Steps

- Review all condensed frames above
- Compare with original full unit for deep understanding
- Practice worked examples and PYQ problems



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Syllabus Coverage

- 2.1 Introduction, Features & Applications of Python
- 2.2 Python Installation & Basic Program Structure
- 2.3 Keywords, Identifiers & Variables
- 2.4 Data Types
- 2.5 Operators
- 2.6 Type Conversion
- 2.7 GTU PYQ Practice

Weightage: $\approx 14\%$ | Hours: 6

Topic 1: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 3–6 (reference for further study)

Topic 2: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 7–11 (reference for further study)

Topic 3: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 12–16 (reference for further study)

Topic 4: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 17–21 (reference for further study)

Topic 5: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 22–26 (reference for further study)

Topic 6: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 27–31 (reference for further study)

Topic 7: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 32–35 (reference for further study)

Topic 8: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 36–40 (reference for further study)

Topic 9: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 41–45 (reference for further study)

Topic 10: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 46–50 (reference for further study)

Topic 11: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 51–55 (reference for further study)

Topic 12: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 56–60 (reference for further study)

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unit-3-flow-of-control — Overview

Unit 3 — Contents

Topic 1: Key Concepts

Key Topics

- **Sequential** — Statements execute one after another (default)
- **Selection / Decision** — Execute different code based on a condition
- **Iteration / Loop** — Repeat a block of code multiple times

Key Definition

Sequential — Statements execute one after another (default)

Source Coverage

Frames 3–6 (reference for further study)

Topic 2: Key Concepts

Key Topics

- Conditions are checked top to bottom
- First True condition executes its block
- else is optional — runs if none match

Key Definition

Conditions are checked top to bottom

Source Coverage

Frames 7–11 (reference for further study)

Topic 3: Key Concepts

Key Topics

- `break` — exit the loop immediately
- `continue` — skip to next iteration

Key Definition

`break` — exit the loop immediately

Source Coverage

Frames 12–16 (reference for further study)

Topic 4: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 17–21 (reference for further study)

Topic 5: Key Concepts

Key Topics

- `break` — exits the loop entirely
- `continue` — skips current iteration, loop continues

Key Definition

`break` — exits the loop entirely

Source Coverage

Frames 22–26 (reference for further study)

Topic 6: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 27–31 (reference for further study)

Topic 7: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 32–35 (reference for further study)

Topic 8: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 36–40 (reference for further study)

Topic 9: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 41–45 (reference for further study)

Topic 10: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 46–50 (reference for further study)

Topic 11: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 51–55 (reference for further study)

Topic 12: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 56–60 (reference for further study)

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unit-4-functions — Overview

Unit 4 — Contents

Topic 1: Key Concepts

Key Topics

- Reusability — write once, use many times
- Modularity — break large programs into smaller pieces
- Readability — code is easier to understand

Key Definition

Reusability — write once, use many times

Source Coverage

Frames 3–6 (reference for further study)

Topic 2: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 7–11 (reference for further study)

Topic 3: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 12–16 (reference for further study)

Topic 4: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 17–21 (reference for further study)

Topic 5: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 22–26 (reference for further study)

Topic 6: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 27–31 (reference for further study)

Topic 7: Key Concepts

Key Definition

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Frames 32–35 (reference for further study)

Topic 8: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 36–40 (reference for further study)

Topic 9: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 41–45 (reference for further study)

Topic 10: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 46–50 (reference for further study)

Topic 11: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 51–55 (reference for further study)

Topic 12: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 56–60 (reference for further study)

Unit Summary & Revision

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unit-5-data-structures — Overview

Unit 5 — Contents

Topic 1: Key Concepts

Key Topics

- Ordered — items maintain insertion order
- Mutable — can add, remove, or change items
- Allows duplicates — same value can appear multiple times

Key Definition

Ordered — items maintain insertion order

Source Coverage

Frames 3–6 (reference for further study)

Topic 2: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 7–11 (reference for further study)

Topic 3: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 12–16 (reference for further study)

Topic 4: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 17–21 (reference for further study)

Topic 5: Key Concepts

Key Definition

See materials for detailed content.

Source Coverage

Frames 22–26 (reference for further study)

Topic 6: Key Concepts

Key Definition

See materials for detailed content.

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Frames 27–31 (reference for further study)

Topic 7: Key Concepts

Key Definition

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Frames 32–35 (reference for further study)

Topic 8: Key Concepts

Key Definition

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Frames 36–40 (reference for further study)

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Frames 46–50 (reference for further study)

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Key Definition

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Source Coverage

Frames 51–55 (reference for further study)

Topic 12: Key Concepts

Key Definition

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Source Coverage

Frames 56–60 (reference for further study)

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