

# Preface to Latest NSQF (Level-3) Compliant Edition

Directorate General of Training (DGT) under the Ministry of Skill Development & Entrepreneurship, being the apex organisation for planning, development and coordination of vocational training at the national level, undertakes steps from time to time to upgrade, enhance and improve various aspects in view of changing market and industrial requirements.

In consideration of National Skill Qualification Framework (NSQF) having been officially introduced in the country, DGT has incorporated the concept of competency-based curricula in respect of trades designated under Craftsmen Training Scheme and all trades have been aligned with appropriate NSQF levels. NSQF organises levels considering five descriptors namely process, professional skill (practical), professional knowledge (theory), core skill and responsibility. Plumber trade has been assigned level 3 in Plumbing Sector.

Keeping in view all these latest changes, this book on Plumber Trade Theory has been appropriately revised and updated including necessary additional matter on important areas like plumber's tools, pipe fittings and others. Each chapter is supplemented with short question - answers and multiple choice questions to enable trainees for progressive self-test of their understanding and learning. A very significant novel addition in this volume is incorporation of eight model papers on A. I. T. T. patterns and that too with answers and essential explanatory notes, which should, hopefully, enable trainees to prepare themselves for the annual trade test with confidence.

As such this book should serve well the needs of trainees and even the instructors of Plumber trade. We do welcome suggestions that would help us further improve this volume in its subsequent editions

— Author

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NSQF Level-3 compliant competency based Curriculum for Plumber Under CTS (2022 Syllabus) ..... (vii–viii)

## 1. Safety ..... 1–11

*Plumbing, Plumber's Tasks, Occupational Hazards, General workshop safety, General Safety Precautions in plumbing, Personal Protective equipment, Fire Hazard, Fire extinguishers, Safety signs and symbols, Electric shock, Housekeeping, 5S concept, First Aid.*

### Assignment/Test—Solved ..... 9–11

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

## 2. Plumber's Tools ..... 12–24

*Bit brace, ratchet brace, Threading die, Pipe wrench, Chain pipe wrench, Spanner set, Plumbing symbols, GI Pipes, CPVC Pipes, PVC Pipes, HDPE Pipes, Pipe fitting.*

### Assignment/Test—Solved ..... 23–24

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

## 3. Basic Fitting ..... 25–49

*Marking and marking tools, Hand tools, Measuring instruments, Cutting tools and operations.*

### Assignment/Test—Solved ..... 44–49

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

## 4. Carpenter's Works ..... 50–66

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### Assignment/Test—Solved ..... 64–66

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

## 5. Gas Welding ..... 67–77

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### Assignment/Test—Solved ..... 75–77

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

## 6. Mason's Works ..... 78–92

*Masonry tools, Making holes in walls and floors, Brick, Brickwork, Scaffolding, Mortar, Cement, Sand, Plastering, Requirement of the good plaster, Concrete, Waterproofing, Manhole, Septic tank, Gully trap.*

### Assignment/Test—Solved ..... 90–92

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

## 7. Pipe Fitting ..... 93–102

*Pipes used in plumbing, Pipe vice, Cutting pipes, Pipe cutter, Pipe bending, Pipe bending machines, Pipe threading, Pipe joints, Alignment of pipes, safety precautions.*

### Assignment/Test—Solved ..... 101–102

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

## 8. Composition of Water ..... 103–111

*Water, Forms of water, Some interesting facts about water, Sources of water, Impurities in water, Purification of water, Soft and hard water, Hardness of water, Action of water on lead, Bursting pressure, Pressure, Expansion of water on freezing, Expansion of water on heating, Bernoulli's principle, Pascal's law, Water hammer in pipe.*

### Assignment/Test—Solved ..... 109–111

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

## 9. Metals ..... 112–121

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### Assignment/Test—Solved ..... 118–121

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

## 10. Water Supply System ..... 122–138

*Sources of water, Water supply system of a town, Water supply distribution systems, Methods of water distribution, Distribution reservoirs, Pumps, Valves, Fire hydrants, Plumbing symbols, Storage of water in buildings, Types of tanks, Pipe Laying, Pipe jointing systems.*

### Assignment/Test—Solved ..... 135–138

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

## 11. Sanitary Appliances ..... 139–147

*Flush toilet, squat toilet, wash basin, sink, urinal, bathtub, shower, bidet, mixing tap, popup waste.*

### Assignment/Test—Solved ..... 146–147

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

## 12. Domestic Drainage System ..... 148–157

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**Assignment/Test—Solved ..... 155–157**

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

**13. Heating System ..... 158–165**

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**Assignment/Test—Solved ..... 164–165**

- Multiple Choice Questions
- Key to Multiple Choice Questions
- Short Q-Ans. (Helpful in solving MCQs)

**Appendix : Model Papers 1 to 8 (for A.I.T.T. Exam – NSQF Level – 3) ..... 166–208**