

**CERTLABZ****CERTIFICATION BOARD****CIOT-001**

# Certified IoT Solutions Engineer (CIOT)

## Exam Objectives CIOT-001

### About the exam

| Item                | Detail                                                                                                                                                                                                                                                                                               |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Level               | Intermediate                                                                                                                                                                                                                                                                                         |
| Number of questions | 80. A performance-based exam: each form can carry up to 5 to 12 performance-based questions alongside the multiple-choice questions.                                                                                                                                                                 |
| Delivery model      | Computer adaptive in 3 stages of 28, 26, 26 questions. Your score on each stage selects the difficulty of the next, so no two candidates sit the same paper.                                                                                                                                         |
| Time limit          | 120 minutes                                                                                                                                                                                                                                                                                          |
| Scoring             | You need a score of 700 out of 900 to pass. Results are reported on a scale of 100 to 900, and 700 corresponds to answering 72% of the exam correctly. Harder questions carry more weight, so a score means the same thing on any route. Multiple-response items and PBQs are scored all or nothing. |
| Delivery            | Online, fully proctored (webcam, microphone and screen).                                                                                                                                                                                                                                             |
| Prerequisites       | No formal prerequisite. Candidates do best with some hands-on IoT, embedded or cloud experience and 30 to 50 hours of study.                                                                                                                                                                         |
| Retakes             | No waiting period after a failed first attempt. Candidates pay the exam price each time they attempt the exam. See the CertLabz Certification Retake Policy at <a href="https://certlabz.com/certification-retake-policy.html">certlabz.com/certification-retake-policy.html</a>                     |
| Validity            | 3 years. Renew with 50 CEUs per cycle and the \$35 annual continuing-education fee, or by passing the current exam.                                                                                                                                                                                  |
| Language            | English                                                                                                                                                                                                                                                                                              |
| Exam voucher        | \$149 for one sitting, valid 12 months. Bundles add the study guide ebook and the All Access plan.                                                                                                                                                                                                   |

### Domain weights

| Domain                                         | Questions |
|------------------------------------------------|-----------|
| D1 IoT Foundations and Architecture (16%)      | 13        |
| D2 Devices, Sensors and Embedded Systems (16%) | 13        |
| D3 Connectivity and Protocols (17%)            | 14        |

D4 IoT Data, Edge and Cloud (17%)

|                                                     |           |
|-----------------------------------------------------|-----------|
|                                                     | 14        |
| D5 IoT Security (17%)                               | 13        |
| D6 Solution Design, Deployment and Operations (17%) | 13        |
| <b>Total (100%)</b>                                 | <b>80</b> |

## Objectives by domain

Each objective may appear as knowledge, a scenario to judge, a circuit to trace or assemble, or a number to compute. Each form can carry up to 5 to 12 performance-based questions: drag-and-drop matching, sequencing and table completion, drawn fresh each attempt. The exam does not test any vendor's SDK syntax.

### D1 IoT Foundations and Architecture

16% 13 questions

- D1.1 What IoT is
- D1.2 IoT reference architecture
- D1.3 Device to cloud flow
- D1.4 Use cases and value
- D1.5 Standards bodies
- D1.6 Key terms

### D2 Devices, Sensors and Embedded Systems

16% 13 questions

- D2.1 Sensors and actuators
- D2.2 Microcontrollers
- D2.3 Embedded firmware
- D2.4 Power and batteries
- D2.5 Device interfaces
- D2.6 Prototyping boards

### D3 Connectivity and Protocols

17% 14 questions

- D3.1 Wi-Fi and cellular
- D3.2 Bluetooth and Zigbee
- D3.3 LPWAN and LoRaWAN
- D3.4 MQTT and CoAP
- D3.5 Gateways
- D3.6 Network topologies

### D4 IoT Data, Edge and Cloud

17% 14 questions

- D4.1 Telemetry and messaging
- D4.2 Edge computing
- D4.3 Stream processing
- D4.4 Time-series storage
- D4.5 Cloud IoT platforms
- D4.6 Analytics and dashboards

## D5 IoT Security

17% 13 questions

- D5.1 Device identity
- D5.2 Secure boot and updates
- D5.3 Encryption and TLS
- D5.4 Authentication
- D5.5 Network segmentation
- D5.6 Threats and mitigations

## D6 Solution Design, Deployment and Operations

17% 13 questions

- D6.1 Requirements and design
- D6.2 Provisioning at scale
- D6.3 Fleet management
- D6.4 Monitoring and alerts
- D6.5 Reliability
- D6.6 Cost and lifecycle

## Continuing education

| Renewal                 | Requirement                                                 |
|-------------------------|-------------------------------------------------------------|
| Validity                | 3 years from the date of issue                              |
| CEUs required per cycle | 50                                                          |
| Annual CE fee           | \$35                                                        |
| Alternative to CEUs     | Pass the current version of the exam before the expiry date |

## Qualifying activities

| Activity                                                   | CEUs                               |
|------------------------------------------------------------|------------------------------------|
| CertLabz labs, PBQs, courses and SkillTracker assessments  | 1 CEU per hour, up to 25 per cycle |
| Other industry certifications earned or renewed            | 10 to 25 each, depending on level  |
| Conferences, webinars and training                         | 1 CEU per hour, up to 20 per cycle |
| IoT, embedded or cloud work experience                     | 3 per year, up to 9 per cycle      |
| Teaching, mentoring, publishing or community contributions | Up to 15 per cycle                 |
| College courses in computing or engineering                | 10 per completed course            |

## CertLabz Certification Retake Policy

- **No waiting period after a failed first attempt:** If you fail your first attempt at any CertLabz certification examination, CertLabz does not require any waiting period between the first and second attempt.
- **Once you pass, you cannot resit the same exam code:** A candidate who has passed an exam and achieved a certification cannot take that exam again under the same exam code without prior consent from CertLabz. You will need to wait until a new series of the exam is published before attempting to recertify by examination.
- **Beta examinations, one attempt only:** A CertLabz beta examination may be taken one time by each candidate.
- **Violations invalidate the attempt:** A test found to be in violation of this policy will be invalidated, and the candidate may be subject to a suspension period. Repeat violators will be permanently banned from the CertLabz Certification Program.
- **Every attempt is paid for:** Candidates must pay the exam price each time they attempt the exam. CertLabz does not offer free retests or discounts on retakes.

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<https://certlabz.com/certifications/certified-iot-solutions-engineer.html>