

IQRA NATIONAL UNIVERSITY

FALL-18 Final Term Examination

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| **Course Name** | **Degree/Semester** | **Max. Marks** | **Max. Time** | **Date** | **Instructor** |
| Formal Methods in Software Engineering | BS (SE) | 50 | 2 Hours. | Monday, 28st January, 2019 | Waqas Swati |

**Attempt all questions. All questions carry equal marks**

**Understanding question is part of exam.**

**Write to the point answer in neat and clean way.**

**Question: 1 (05 marks)**

Define Formal Specification Language with an example.

**Question: 2 (05 marks)**

Each programming language with a well-defined semantics is Formal Specification Language, but reverse is not true. Why?

**Question: 3 (15 marks)**

Develop a Z specification for INU library system that specifically provides functionality for adding new users, removing existing users, changing passwords, and logging in.

**Question: 4 (10 marks)**

State the usefulness of High Level Petri-Nets with example.

**Question: 5 (15 marks)** Draw a high-level petri net for a generic login subsystem with login, add user, remove user and change password functionalities.

**sGood Luck 😊**