ATHLONE INSTITUTE OF TECHNOLOGY

SCHOOL OF ENGINEERING

SEMESTER 1 EXAMINATIONS 2015

December Session

BACHELOR OF SCIENCE IN SOFTWARE DESIGN

YEAR 3

SOFTWARE QUALITY AND PROCESS IMPROVEMENT 3

External Examiner(s):	**Mr Jerh O' Connor** **Dr Chris Exton**
Internal Examiner(s):	**Mr Michael P Russell**

Instructions to candidates:
Read all questions carefully.
All questions carry equal marks.
Answer **Three** out of **Four** questions.

Time Allowed: 2 Hrs

No. of pages including cover sheet: 3

Q.1 (a) Pair programming has become a popular XP tool because code is regularly reviewed by more than one person, resulting in higher quality code. Identify and describe the roles and responsibilities in the Pair Programming process?

(8 marks)

(b) Discuss the benefits of Pair Programming that contribute to the development and quality of the product.

(12 marks)
[20 marks]

Q.2 (a) In Scrum, differentiate between the different roles and responsibilities of the Product Owner, the Scrum Master, and the Team.

(4 marks)

(b) In Scrum, what is the purpose of the Working Agreement? What issues or topics are addressed by the Working Agreement?

(6 marks)

(c) Agile software development has come to value:

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan

Explain what each of these values mean.

(10 marks)
[20 marks]

Q.3. Software Quality Management is concerned with ensuring that software has a low number of defects and that it reaches the required standards of maintainability, reliability, portability, and so on. Quality Management activities include Software Measurement.

(a) Describe in detail a Software Measurement Process that could be employed as part of a Software Quality Management System.

(8 marks)

(b) Identify, describe, and briefly explain the role of six (6) Static Metrics that can be collected by measurements based on the representations of the system, such as documentation or program code.

(12 marks)
[20 marks]

Q.4. (a) Identify and justify what sections should be included in a quality plan?

(4 marks)

(b) Identify and describe the stages in the software inspection process?

(4 marks)

(c) List and justify the classes of faults that should be considered in an inspection checklist.

(6 marks)

(d) Describe the six object-oriented metrics used in the CK (Chidamber and Kemerer) OO metrics suite.

(6 marks)

[20 marks]