"Investing in Africa's future"

COLLEGE OF ENGINEERING AND APPLIED SCIENCES (CEAS)

NCSE 206: REQUIREMENTS ENGINEERING

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER 2025

LECTURER: Prof. Yogesh Awasthi

DURATION: 3 HOURS

INSTRUCTIONS

Answer the question as per the instructions given in the sections

Start **each** question on a new page on your answer sheet.

The marks allocated to **each** question are shown at the end of the section.

Section A (20 Marks)

Answer all questions in the section

Question 1- Multiple Choice Questions

Choose the correct or the best alternative in the following: (2×10 = 20 marks)

i. Which of the following is a root cause of software project failure?
a) Over-budgeting
b) Requirement errors
c) Advanced technology
d) Excessive documentation

ii. SCRUM, XP, and FDD are examples of:
a) Requirement elicitation techniques
b) Agile software development methods
c) Risk analysis methods
d) Verification techniques

iii. Which team role is primarily responsible for identifying stakeholders and users?
a) Developer
b) Requirements Analyst
c) Project Manager
d) Tester

iv. Which of the following is NOT a requirement elicitation technique?
a) Interview
b) Storyboarding
c) Role-playing
d) Compilation

v. A Vision Document is used to:
a) Define solution system boundaries
b) Capture future requirements and project scope
c) Track testing results
d) Document coding standards

vi. In requirements workshops, the facilitator's role is to:
a) Take notes only
b) Run the session, ensure participation, and resolve conflicts
c) Approve requirements baseline
d) Conduct system testing

vii. Which diagram is most suitable for modelling dynamic interactions between objects?
a) Class diagram
b) Entity-relationship model
c) Sequence diagram
d) Decision tree

viii. Traceability in requirements engineering is used to:
a) Link requirements to their sources and test cases
b) Manage project cost estimation
c) Track employee responsibilities
d) Evaluate coding practices

ix. Which validation activity ensures that every requirement is covered by at least one test case?
a) Walkthroughs
b) Unit testing
c) Depth vs coverage check
d) Peer review

x. Which of the following is a conflict resolution approach in requirements management?
a) Escalation model
b) Waterfall model
c) Lean model
d) Agile manifesto

Section B (40 Marks)

Question 2.

Answer any Five questions from Section B. (8×5=40 marks)

a) Explain the high cost of requirement errors and how they affect software project success.
b) Discuss the skills required by a requirements analyst for effective requirements management.
c) Describe the requirements elicitation process with suitable examples.
d) Write short notes on any two:
   i. Storyboarding
   ii. Brainstorming
   iii. Role-playing
e) What is a Requirements Baseline? Explain its role in project scope management.
f) Differentiate between Requirements vs Design with suitable examples.
g) Explain the importance of Verification & Validation (V&V) in requirements engineering

Section C (40 Marks)

Question 3.

Answer any two questions from Section C. (20×2=40 marks)

a) **Case Study:** A university is developing a new Enterprise Resource Planning (ERP) system. As requirement engineer, explain how you would identify stakeholders, define system boundaries, and select appropriate elicitation techniques.
b) Discuss the role of Use Case Modelling in requirement specification. Illustrate your answer with a Use Case diagram of an Automated Teller Machine (ATM) system.
c) Explain the traceability model in requirements engineering. How does it help in requirements change control and quality assurance?
d) Conflicts often arise during requirements gathering. Explain the conflict resolution approaches (Escalation model, Settlements, Negotiation) with real-world software project examples.

END OF EXAMINATION