



***“INVESTING IN AFRICA’S FUTURE”***  
**COLLEGE OF ENGINEERING AND APPLIED SCIENCES (CEAS)**

**NCSE206: REQUIREMENTS ENGINEERING**

**END OF FIRST SEMESTER EXAMINATIONS**

**NOVEMBER 2023**

**LECTURER: DR. 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)

### Q.1 Choose the correct or the best alternative in the following: (2×10)

- i. What is the primary purpose of using a Fishbone diagram in problem-solving?
  - A. To identify the root cause of a problem
  - B. To brainstorm potential solutions
  - C. To assign blame for the problem
  - D. To allocate resources for problem resolution
- ii. Who makes the final call on priority order in the Product Backlog?
  - A. The Development Team
  - B. The Scrum Master
  - C. The Product Owner
  - D. Someone in senior leadership like the MD or the CEO
- iii. What are the typical categories used in a Fishbone diagram?
  - A. People, Process, Product, Technology
  - B. Suppliers, Inputs, Processes, Outputs, Customers
  - C. Quality, Cost, Time, Scope
  - D. Planning, Execution, Monitoring, Control
- iv. What is the primary role of a Product Owner?
  - A. The PO is basically a project manager who balances scope, time, cost and risk.
  - B. Maximizing the Return on Investment (ROI) of the software developed.
  - C. People management for the Team.
  - D. Avoiding distracting and keeping stakeholders at bay.
- v. Which of the two ceremonies are executed after all development for a sprint and beginning of the next one?
  - A. Sprint review and sprint retrospective
  - B. Sprint review and sprint planning
  - C. Daily stand-up and sprint review
  - D. Sprint retrospective and sprint planning
- vi. Which is the fastest way to generate a lot of good quality requirements?
  - A. Surveys
  - B. Facilitated workshops
  - C. Wisdom of crowd
  - D. Dot voting
- vii. Who facilitates the sprint review?
  - A. Sponsor
  - B. Product owner
  - C. Anyone from the self-organized team

- D. Scrum Master
- viii. Which form of software development model is most suited to a system where all the requirements are known at the start of a project and remain stable throughout the project?
- A. Waterfall model                      B. Incremental model  
C. Evolutionary model                  D. Spiral model
- ix. Constraints on the services or functions offered by the system are \_\_\_\_\_
- A. Non-functional Requirements      B. System Requirements  
C. Functional Requirements          D. All of the above
- x. Why is it important to involve stakeholders in the requirements engineering process?
- A. To increase the complexity of the software requirements  
B. To ensure the proper implementation of software requirements  
C. To gather different perspectives and ensure the satisfaction of stakeholders  
D. To reduce the number of software requirements

## Section B (40 Marks)

### Q2. Answer any five questions from Section B.

- a. What are the root causes of project success and failure according to the Standish Group's survey? (5)
- b. Why are requirement errors particularly expensive in software development projects? (5)
- c. What are the roles in Scrum methodology? (5)
- d. What are the key elements and practices in Extreme Programming (XP)?
- e. What are the six team skills necessary for effective requirements management in a modern software team? (5)
- f. Why is it important to prioritize and address the most significant root causes? (5)
- g. Discuss the importance of requirements conflict and prioritization in the requirements elicitation process. (5)

## **Section C (40 Marks)**

### **Q3. Answer any two questions from Section C.**

a. Agile methodologies embrace change and respond to customer feedback. Explain how the product backlog and sprint backlog are used in Scrum to manage requirements and prioritize work. Discuss the concept of user stories and how they contribute to effective backlog management. **(20)**

b. How can a fishbone diagram be utilized to identify the root causes of a problem in software engineering? The customer support department of a software company has been receiving a high volume of customer complaints. Draw a fishbone diagram to identify and categorize the possible root causes of these complaints **(20)**

c. What are the advantages and disadvantages of conducting interviews as a requirements elicitation technique? How can interviews be made more effective? **(20)**

d. What are the benefits of conducting requirements workshops in software requirements engineering? Explain how requirements workshops can lead to a reduction in product defects, scope creep, and time and effort savings. Also, discuss the importance of gathering inputs from all stakeholders and how functionality decisions are made during workshops. **(20)**

**END OF EXAMINATION**