



*“Investing in Africa’s future”*

**COLLEGE OF BUSINESS, PEACE, LEADERSHIP AND GOVERNANCE**

**REQUIREMENT ENGINEERING-NCSE 206**

**END OF FIRST SEMESTER EXAMINATIONS**

**NOVEMBER 2022**

**LECTURER: DR. YOGESH AWASTHI**

**DURATION: 3 HOURS**

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### **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. A newly formed development team is working on Sprint zero. In terms of doing the following activities, which is false?

- A. Team completes the entire architecture and high-level design for the project, leaving out the low-level design.
  - B. Develop the detailed project plan.
  - C. Deliver a few stories.
  - D. All of the these.
- 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. With respect to the roles on a Scrum team, choose the odd one out?
  - A. Scrum Master
  - B. Product Owner
  - C. Development Team
  - D. Project Manager
- 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. The second half of the Sprint Review Meeting is a retrospective for the Scrum team that is led by the \_\_\_\_\_
- A. Team Lead                              B. Scrum Master
- C. Manager                                D. Product Owner

### Section B (40 Marks)

**Q2. Answer any Five questions from Section B. (8×5=40)**

- a. What are the root causes of project success and failure?
- b. What do you mean by SCRUM? Explain the role of product owner.
- c. What are the various steps of Problem Analysis? Explain any two of them.
- d. Explain the following:
  - (i) Questionnaire
  - (ii) Interview
  - (iii) Introspection
  - (iv) Social Analysis
- e. Who are the participants of requirements workshop? Explain the problem and suggestion of workshop in requirement elicitation techniques.
- f. What are the different phases of requirements engineering process?

### Section C (40 Marks)

**Q3. Answer any two questions from Section C. (20×2=40)**

#### a. Case Study Scenario

Goatilicious, a small company based in Suffolk, has been making luxury goat milk ice cream for nearly ten years. Its owner and Managing Director, Warren Randall, runs the business from his farm where he and his staff rear the goats and make the ice cream which is sold to farm shops, delicatessens, restaurants and schools across the East of England.

The herd now comprises some 300 mainly Anglo-Nubian goats and is maintained by Head Goatherd, Malcolm Illingworth, and five other stock workers who also undertake the twice-daily milkings. Under the supervision of Production Manager, Rachel Scott, the team of ten food technicians manufacture the ice cream in over forty flavours (some as stock items and some made to order only) and package it in 5litre napolis, for serve-over counters, and

retail tubs of 1litre and 500ml as well as ‘spoon in lid’ convenience tubs of 125ml. The ice cream is stored onsite in walk-in freezers at -29°C and, using the company’s own freezer vans, delivered to customers by the five drivers and Logistics Manager, Rhys Hawksby.

Ellie Martin (Office Supervisor) co-ordinates all of the company’s activities from the office onsite, where she and her two office staff process customer orders and invoices (and payments) and run the payroll as well as trying to keep on top of maintaining levels of consumables such as feed and bedding for the goats and the various added ingredients required to make the ice cream. Beyond a couple of simple spreadsheets and the COTS payroll system there is no automation in the office and, following the recent expansion of the company and in the light of Warren’s plans for the next year which include opening more channels to market and increasing sales by another 15%, Ellie has been expressing concerns over her team’s ability to cope.

Under some pressure from Ellie, Warren has agreed to look into the possibility of developing an integrated IT system to automate a lot of the office work and to assist with stock control (and, possibly, herd management). Having discussed this with the Management Team (MD, Production Manager, Logistics Manager, Office Supervisor), Warren has made a start on identifying requirements for the system but has quickly got out of his depth. He has decided to limit the system initially to handling customer orders and invoices and has now hired you as a Business Analyst to continue the work, known as the First Step project. The new system will need to take customer orders and produce invoices. It has occurred to Warren that it might drive up sales if customers could place orders online as well as by phone and this is now a top priority.

The requirements Warren has identified so far are:

1. All new customers need to be added to the system easily.
2. The system must record customer orders (not payments yet) up to about 50 per day. These need to be retained for five years.
3. Office staff can do 1. & 2. and so can customers themselves, via the website.
4. The system should generate (but not send) invoices automatically as orders are received.
5. Office staff (only) must be able to revise the details of an order and a new invoice should be generated as a result.
6. Weekly reports of unpaid invoices will be needed by the MD.
7. Office staff must be able to print invoices or email them to customers.
8. The Production Manager would like to be able to view all customer orders so that she can plan production.
9. It should be possible to vary the payment terms on the invoices
10. It all needs to interface with the payroll system (MD’s requirement)

***Identify the Functional and Non-Functional Requirements from the above requirements.***

b. Do you think that agile methodology will be a game changer in software requirement engineering? If yes which of the agile methodology will be more adaptable and if no then justify your answer with suitable example.

c. What are the major requisite team skills required for effective requirements management? Explain your answer with suitable example.

**END OF PAPER**

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