

## **Engineering & Management: Advanced Scenario-Based Exam**

**Instructions:** Fill in the blanks with the most appropriate terms from the word bank. Some sentences require multiple terms to be logically complete.

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### **Word Bank**

**Scientific Method, Innovation, Commercialization, Growth, Decline, MVP (Minimum Viable Product), Product-Market Fit, Value Proposition, User Persona, Backlog, Scrum, Sprints, Product Owner, Scrum Master, Developers, Daily Scrum, Sprint Planning, Sprint Review, Sprint Retrospective, Churn Rate, LTV (Lifetime Value), CAC (Customer Acquisition Cost), North Star Metric, Validation, Verification, Unit Testing, Regression Testing, Strategic Plan, SWOT Analysis, External Validity, Internal Validity, Reliability, Non-maleficence, Autonomy, Beneficence, Justice, Labor Law, Notice Period, Severance Pay, Overtime, ETL, Data Transformation, Agile, Waterfall, Constraints, Prototype.**

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### **Advanced Questions**

1. In the engineering design cycle, after defining the problem and performing research, engineers must identify \_\_\_\_\_ which are limitations like budget or safety, and then build a \_\_\_\_\_ to test their initial design ideas.
2. A company is building a medical app. During the QA phase, they perform \_\_\_\_\_ to ensure the code meets technical specifications (building it right), and conduct \_\_\_\_\_ by testing with real doctors to ensure it solves the actual clinical problem (building the right thing).
3. When a startup transitions from the \_\_\_\_\_ stage to the \_\_\_\_\_ stage of the product life cycle, their primary challenge shifts from creating awareness to managing rapid scaling and intense competition.
4. If a SaaS company notices that their \_\_\_\_\_ is higher than their \_\_\_\_\_, it means they are spending more to get a customer than the customer is worth over time, indicating a failed business model.
5. During a \_\_\_\_\_, the team identifies a major bottleneck in their workflow. They decide to address this issue during the next \_\_\_\_\_ to ensure that the process improvement is implemented in the upcoming work cycle.
6. A researcher finds that a specific algorithm works perfectly in a controlled lab environment (\_\_\_\_\_ is high), but fails when applied to diverse real-world datasets, indicating a lack of \_\_\_\_\_.
7. In the \_\_\_\_\_ methodology, the \_\_\_\_\_ is responsible for maintaining the \_\_\_\_\_, ensuring that the most valuable tasks are always at the top for the team to pull from.

8. When a developer modifies a core library, the QA team must run \_\_\_\_\_ to ensure that existing functionalities didn't break, followed by \_\_\_\_\_ on the specific new components.
9. Under Turkish \_\_\_\_\_, if an employee has worked for 3 years and is terminated without a valid reason, the employer must provide a \_\_\_\_\_ (or payment in lieu of it) and calculate \_\_\_\_\_ based on the years of service.
10. In a data warehouse project, the \_\_\_\_\_ process begins with extracting raw data; however, without proper \_\_\_\_\_, the data might be inconsistent or in the wrong format for the target system.
11. To achieve \_\_\_\_\_, a product manager must continuously iterate on the \_\_\_\_\_ until the target \_\_\_\_\_ feels the product is indispensable for their daily tasks.
12. While \_\_\_\_\_ is the act of creating a brand new device or process, \_\_\_\_\_ is the holistic process of turning that creation into a successful business through \_\_\_\_\_.
13. In the ethical framework of research, \_\_\_\_\_ ensures that the researcher does not harm the subject, while \_\_\_\_\_ requires that the study actually provides a positive contribution to the subject or society.
14. A \_\_\_\_\_ serves as a long-term roadmap for an organization, often starting with a \_\_\_\_\_ to identify internal strengths and external threats.
15. If a measurement tool is consistently wrong by the exact same margin every time, it has high \_\_\_\_\_ but low accuracy or \_\_\_\_\_.
16. The \_\_\_\_\_ is an artifact in Scrum that represents a "concrete stepping stone" towards the Product Goal, and it must meet the "Definition of Done" to be considered complete.
17. Unlike the \_\_\_\_\_ model, which is linear and sequential, \_\_\_\_\_ frameworks emphasize iterative development and responding to change.
18. In Turkey, work exceeding \_\_\_\_\_ hours per week is considered \_\_\_\_\_, and the hourly rate for this work must be increased by 50%.
19. The \_\_\_\_\_ acts as a servant-leader, facilitating the \_\_\_\_\_ every morning to help the \_\_\_\_\_ synchronize their work for the next 24 hours.
20. A company's \_\_\_\_\_ helps them focus on the single most important value they provide, such as "Daily Active Users" for a social media app or "Total Miles Driven" for an autonomous car company.
21. \_\_\_\_\_ is an ethical principle that demands participants be given enough information to provide "Informed Consent," thereby respecting their \_\_\_\_\_.
22. During the \_\_\_\_\_ stage of the PLC, a company might decide to "harvest" the product by cutting all marketing spend as the market is saturated and sales are starting to \_\_\_\_\_.

23. \_\_\_\_\_ are small, time-boxed iterations where a team delivers a usable increment, and the goals for these are set during \_\_\_\_\_.
24. To define who they are building for, PMs create a \_\_\_\_\_, and to define what they are building, they write \_\_\_\_\_ from that person's perspective.
25. The principle of \_\_\_\_\_ in ethics ensures that the selection of research participants is fair and that the benefits of the research are distributed equally across society.
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### Answer Key

1. Constraints / Prototype | 2. Verification / Validation | 3. Introduction / Growth | 4. CAC / LTV | 5. Sprint Retrospective / Sprints (or Sprint Planning) | 6. Internal Validity / External Validity | 7. Scrum / Product Owner / Backlog | 8. Regression Testing / Unit Testing | 9. Labor Law / Notice Period / Severance Pay | 10. ETL / Data Transformation | 11. Product-Market Fit / Value Proposition / User Persona | 12. Invention / Innovation / Commercialization | 13. Non-maleficence / Beneficence | 14. Strategic Plan / SWOT Analysis | 15. Reliability / Validation (or Accuracy) | 16. Increment (Artifact) | 17. Waterfall / Agile (or Scrum) | 18. 45 / Overtime | 19. Scrum Master / Daily Scrum / Developers | 20. North Star Metric | 21. Autonomy (Informed Consent) / Autonomy | 22. Maturity / Decline | 23. Sprints / Sprint Planning | 24. User Persona / User Stories | 25. Justice