Engineering & Management: Conceptual Mastery Exam

Instructions: Fill in the blanks with the most appropriate term from the word bank. Note that some questions contain multiple blanks to test the relationship between complex concepts.

Word Bank

Engineering, Scientific Method, Hypothesis, Innovation, Invention, Product Management, Product Life Cycle, Introduction, Growth, Maturity, Decline, MVP (Minimum Viable Product), Product-Market Fit, Value Proposition, User Persona, User Stories, 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, Commercialization.

Questions

1. In technical quality management, _____ ensures that the product is built according to the design specifications, while _____ confirms that the final product actually meets the customer's needs and solves their problem.
2. While _____ is the act of creating a brand-new device or process, _____ is the broader process of refining that idea and turning it into a successful, value-creating market offering.
3. Startups strive to achieve _____, which occurs when a product satisfies a strong market demand, usually after iterating through several versions of a(n) _____.
4. In the _____, the _____ stage is often characterized by high marketing costs and low sales, whereas the _____ stage is where competition is most intense and market share must be defended.
5. Within a Scrum Team, the _____ is accountable for prioritizing the items in the _____, while the _____ are responsible for deciding "how" the work is technically executed.
6. _____ refers to the consistency of a measurement (getting the same result repeatedly), whereas _____refers to whether the experiment accurately measures what it was intended to measure without bias.
7. The _____ is a time-boxed, 15-minute event held every day to synchronize the activities of the team and identify any impediments.
8. To prevent new code changes from breaking existing features in a software application, the QA team must perform _____.

9. A(n) _____ is a strategic tool used by organizations to identify internal strengths and external threats, often as part of a larger _____.
10. The process of extracting raw data, applying _____ to clean or reformat it, and then loading it into a target system is known as the _____ process.
11. In research ethics, _____ requires the researcher to maximize benefits for the subject, while _____dictates that no intentional harm should come to the participant.
12. A clear statement that explains the unique benefit of a product and why it is better than the competition is called a(n) _____.
13. _____ is a metric that estimates the total net profit a company can expect to earn from a customer throughout their entire relationship.
14. According to Turkish _____, any work performed beyond the standard 45-hour work week must be compensated as _____ with a 50% increased hourly rate.
15. During the _____, the Scrum Team inspects its own processes, tools, and relationships to identify improvements for the next work cycle.
16. In the Engineering Design Process, performing _____ immediately after defining the problem helps engineers avoid repeating existing mistakes and discover if a solution already exists.
17. The total cost of marketing and sales efforts divided by the number of new customers acquired is known as the _____.
18. The _____ is a list of specific tasks or user stories selected for completion during the current time-boxed iteration.
19. The _____ is a single, key indicator that defines the core value a product delivers and guides the company toward long-term success.
20. The ethical principle of _____ ensures that research subjects are selected fairly and that the benefits and burdens of research are distributed equitably.
21. When a product's sales begin to drop due to technological obsolescence or changes in consumer preferences, it has entered the _____ stage.
22. The _____ is a logical approach to problem-solving that involves observation, forming a(n) _____, and conducting controlled experiments.
23. To minimize risk, a product manager might release a(n) _____, which is the simplest version of a product that allows the team to collect validated learning.
24. _____ is a financial compensation paid to an employee based on their years of service when they are dismissed through no fault of their own.
25. When a developer tests an individual function or a single module of code in isolation, it is referred to as _____.

Answer Key

1. Verification / Validation | 2. Invention / Innovation | 3. Product-Market Fit / MVP | 4. Product Life Cycle / Introduction / Maturity | 5. Product Owner / Backlog / Developers | 6. Reliability / Internal Validity | 7. Daily Scrum | 8. Regression Testing | 9. SWOT Analysis / Strategic Plan | 10. Data Transformation / ETL | 11. Beneficence / Non-maleficence | 12. Value Proposition | 13. LTV (Lifetime Value) | 14. Labor Law / Overtime | 15. Sprint Retrospective | 16. Background Research | 17. CAC (Customer Acquisition Cost) | 18. Sprint Backlog (Backlog) | 19. North Star Metric | 20. Justice | 21. Decline | 22. Scientific Method / Hypothesis | 23. MVP | 24. Severance Pay | 25. Unit Testing