Here are the answers to your question paper:

Q.1 to Q.5 – True or False with Justifications

Q.1 – **True (T)**
A high-quality research question can be derived from structured user interviews because these sessions provide direct insights into user needs, pain points, and expectations, helping researchers formulate relevant questions.

Q.2 – **True (T)**
In the technology adoption lifecycle, the Late Majority (34%) is larger than the combined total of Innovators (2.5%), Early Adopters (13.5%), and Laggards (16%), making it the largest single group among the later adopters.

Q.3 – **True (T)**
In large organizations, end-users have a significant say in product development, especially through feedback loops, user acceptance testing (UAT), and stakeholder interviews, ensuring the product meets their operational needs.

Q.4 – **False (F)**
Analyzing the product usage of only a few users may lead to biased conclusions because the sample may not represent the entire user base. Broader data collection methods like A/B testing or analytics dashboards are required for accurate insights.

Q.5 – **True (T)**
The belief that all members of a category share the same characteristics is an example of **stereotyping bias**, which can lead to incorrect assumptions and flawed decision-making in product discovery and user research.

Q.6 to Q.9 – Explanations (3 Marks Each)

Q.6 – Yes, this statement is valid. Different types of user needs have varying impacts on satisfaction. According to **Kano's Model**:

- **Basic Needs (Must-Have)** – If unmet, they lead to dissatisfaction, but their fulfillment does not increase satisfaction significantly.
- **Performance Needs (Linear Relationship)** – Satisfaction increases as these needs are better met.
- **Delighters (Exciters)** – These needs, when fulfilled, create high satisfaction but are not expected by users initially.

Q.7 – **Developer misbehavior is more effective** in introducing new features.

- **Customer misbehavior** may highlight issues but does not necessarily lead to structured feature development.
- **Developer misbehavior** (i.e., bending rules or pushing unapproved features) can lead to innovation, such as hidden experimental features that later become essential functionalities (e.g., Gmail's beta stage).

Q.8 – Yes, using a **Startup Canvas** is beneficial.

- It is a **leaner** alternative to Business Model Canvas, focusing on **hypothesis-driven development**.
- Benefits include:
  - Faster iteration and validation of ideas.
  - Reducing the risk of building unnecessary features.
  - Aligning all stakeholders with a single-page document for clarity.

Q.9 – When product requirements are not formally documented, they are mainly expressed through:

- **User Stories and Conversations** – Agile teams rely on verbal communication and post-it notes on Kanban boards.
- **Prototypes and Wireframes** – Visual representation helps in capturing functional and UI/UX requirements.
- **Team Collaboration Tools** – Tools like Jira, Trello, and Slack help track ongoing requirements dynamically.

Q.10 to Q.12 – In-Depth Answers (6 Marks Each)

Q.10
(i) **The product development will require 40 person-months of effort – Valid?**

- This is a **valid estimate** if based on a well-structured **Work Breakdown Structure (WBS)**. However, accuracy depends on assumptions about team productivity and complexity.

(ii) **Why does the cone of uncertainty narrow towards the right?**

- The **Cone of Uncertainty** narrows as the project progresses because more information is gathered, reducing estimation errors. Early-stage estimations have high variability, but as requirements are clarified, uncertainty decreases.

(iii) **Significance of "Contract" in Use Cases**

- A use case defines the **contract** between stakeholders by outlining system behavior under various scenarios. This ensures **mutual agreement** on system interactions, expected outcomes, and constraints.

Q.11
(i) **Agile vs. Conventional Development**

- Agile focuses on **iterative** development, **customer collaboration**, and **flexibility**, whereas conventional methods like Waterfall are **linear and rigid**. Agile is important because it allows rapid adaptation to changes.

(ii) **Importance of Acceptance Criteria in User Story Cards**

- Acceptance criteria define **when a user story is complete**, ensuring clear expectations between developers and stakeholders. It also helps in test case creation.

(iii) **Can requirements be changed during a Sprint?**

- Generally, **no**, because a Sprint backlog is frozen once the Sprint starts. However, changes can be incorporated in future Sprints or via an **exceptional priority change** approved by the Product Owner.

Q.12
(i) **Meaning of "Evidence"**

- In quantitative testing, "evidence" refers to **measurable data points** that validate hypotheses, such as conversion rates, click-through rates, and A/B testing results.

(ii) **Types of Inferences from Evidence**

- **Correlational Inference** – Identifies patterns but does not imply causation.
- **Causal Inference** – Establishes cause-and-effect relationships through controlled experiments.
- **Descriptive Inference** – Summarizes user behavior using analytics.

(iii) **How Qualitative Techniques Complement Quantitative Ones**

- **Qualitative methods (e.g., user interviews, usability testing)** explain the **"why"** behind quantitative data trends.
- Combining both leads to **better product insights** and **holistic decision-making**.
