ROSEBANK COLLEGE

IT PROFESSIONAL PRACTICE

EXAM

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Question 1

Q.1.1 Motivation for Scrum Master and Development Team Lead

To: Manager

From: Bawinile Mahlangu

Subject: Justification for Key Roles on the New ICT Project

Dear Manager,

Thank you for the discussion regarding resourcing for the upcoming ICT project. I understand the need to justify these roles beyond our core development team. The Scrum Master and Development Team Lead are not redundant; they are specialised roles designed to elevate the entire team's performance and ensure project success.

The **Scrum Master** acts as a dedicated **process coach and facilitator**. Their core responsibility is to ensure the team can work without impediments. They facilitate key meetings, protect the team from external interruptions, and guide us in continuously improving our workflow **(Sutherland & Sutherland, 2014).** Without this role, our developers would be burdened with administrative tasks and resolving workflow blockages, which would significantly slow down their actual development work and compromise our delivery timeline.

Conversely, the **Development Team Lead** serves as our **technical anchor and people lead**. While technically skilled, their primary value lies in making critical architectural decisions, mentoring developers, and ensuring our codebase remains robust and

maintainable. They translate business requirements into a coherent technical vision and distribute work effectively. As **DeMarco and Lister (1999)** emphasise, the quality of a team's technical leadership is a primary determinant of project outcomes. Without a Team Lead, we risk inconsistent technical decisions, knowledge silos, and a final product that may be fragile and difficult to scale.

In essence, while developers write the code, the Scrum Master and Team Lead create the optimal environment for that code to be high-quality, delivered efficiently, and aligned with business objectives. These roles are a strategic investment that mitigates risk and directly contributes to a successful project rollout.

Q.1.2 Three Traits of an IT Professional for Scrum Master and Team Lead

1. **Trait: Servant Leadership**
    - **Link to Scrum Master:** This role is the definition of a servant-leader, prioritising the team's needs to ensure they have the environment and support to be effective **(Greenleaf, 1977)**. They facilitate rather than dictate.
    - **Link to Team Lead:** A successful Team Lead empowers their team through mentorship and support, sharing knowledge and removing technical barriers to enable developers to do their best work.
2. **Trait: Exemplary Communication**

- **Link to Scrum Master:** They must be expert facilitators, capable of mediating conflicts and ensuring all voices are heard, thereby fostering a collaborative and transparent team culture.
- **Link to Team Lead:** They act as a crucial bridge, translating complex technical challenges into clear explanations for stakeholders and providing precise, constructive feedback to developers during code reviews.

3. **Trait: Systemic Problem-Solving**
    - **Link to Scrum Master:** Their focus is on systemic and procedural problems. They diagnose workflow bottlenecks and team dysfunctions, implementing solutions that improve the entire development process.
    - **Link to Team Lead:** They tackle deep technical problems, architecting solutions that are not only functional but also scalable, secure, and aligned with long-term strategic goals.

Q.1.3 Considerations for a Solutions Architect Position

In preparing for a Solutions Architect role, my career planning would centre on four key areas:

1. **Cultivating Technical Mastery and Vision:** Moving beyond specific languages to a deep understanding of architectural patterns, cloud ecosystems, and integration strategies. This involves pursuing relevant certifications and hands-on experimentation to build a robust technical foundation.
2. **Developing Strategic Business Acumen:** A Solutions Architect must ensure technology serves the business. I would focus on understanding the company's

strategic objectives and competitive landscape, ensuring that every architectural decision I make delivers tangible business value and supports long-term goals.

3. **Mastering Stakeholder Engagement:** This role requires influencing technical and non-technical audiences alike. I would hone my skills in creating compelling visual architectures and presenting them effectively, learning to negotiate and build consensus around technical proposals.
4. **Building a Verifiable Portfolio of Experience:** I would proactively seek architectural responsibilities in my current role and document these experiences as case studies. A portfolio demonstrating successful design, justification, and delivery of solutions provides concrete evidence of capability beyond a resume **(Hansen, 2019).**

Question 2

Q.2.1 Ensuring Ethics and Good Practice

Organisations maintain ethical standards through an integrated framework of formal policies, cultural shaping, and vigilant oversight.

This typically involves establishing a code of conduct, delivering mandatory ethics training, and implementing secure whistleblowing channels for reporting misconduct **(Trevino & Nelson, 2021).** Furthermore, internal audit functions and legal compliance teams work to ensure adherence to both internal policies and external regulations like data protection acts.

Example: A financial institution, for instance, operates under a strict code of conduct that explicitly prohibits insider trading.

To embed this, all employees complete compulsory annual training on the policy. The organisation's compliance department then actively monitors employee trading activity, and an independently managed, anonymous hotline is available for reporting any suspicious behaviour, creating a multi-layered system to enforce good practice.

Q.2.2 ICT Professionals Bridging the Digital Divide

ICT professionals are uniquely positioned to bridge the digital divide by designing and advocating for accessible, affordable, and relevant technological solutions. Their technical expertise is crucial for creating tools that are usable in contexts with limited resources.

Two initiatives for South Africa:

1. **Developing Low-Bandwidth and Offline-Capable Platforms:** Professionals can engineer software for essential services—such as education, healthcare, and government portals—to function effectively with minimal data consumption or in fully offline modes, syncing when a connection becomes available.
   This directly addresses the critical barrier of high data costs and unreliable connectivity.
2. **Launching Community-Centric Digital Literacy Hubs:** ICT professionals can lead or volunteer in initiatives that establish community tech hubs in libraries or community centres.
   These hubs would provide device access and free Wi-Fi, coupled with training workshops on essential digital skills, from basic online navigation to using digital government services, thus empowering citizens with both access and knowledge **(Gillwald, Mothobi & Rademan, 2018).**

Q.2.3 Workplace Transformation in the IT Industry

Workplace transformation refers to the fundamental evolution in how work is structured, executed, and managed, largely propelled by digital technologies. It encompasses changes to the physical environment, cultural norms, and the digital tools that enable collaboration.

Its significance in the IT industry is profound:

- It has **normalised remote and hybrid work models**, allowing IT companies to tap into a global talent pool and offer employees unprecedented flexibility, a shift made possible by cloud infrastructure and advanced collaboration suites.
- It has been the **primary enabler of Agile methodologies**, shifting teams from siloed structures to dynamic, collaborative units—whether co-located or virtual—that can iterate rapidly and respond to change efficiently.
- It drives the **automation of routine tasks**, which in turn transforms the role of the IT professional towards more strategic, creative, and complex problem-solving, necessitating a culture of continuous learning and upskilling.

Question 3

Q.3.1 Communication Characteristics, Barriers, and Technology

Eight Characteristics of Effective Communication: For communication to be effective, it should be:

1) **Clear** and easily understood;

2) **Concise**, avoiding unnecessary detail;

3) **Complete** with all needed information;

4) **Correct** and factually accurate;

5) **Courteous** and respectful;

6) **Concrete**, using specific details;

7) **Considerate** of the audience's perspective;

8) **Coherent**, with a logical flow of ideas (Adler, Elmhorst & Lucas, 2023).

Eight Barriers to Effective Communication: These often include:

1) **Language and Jargon** that the receiver does not understand;

2) **Cultural Differences** leading to misinterpretation;

3) **Physical Distractions** like noise;

4) **Psychological Barriers** such as personal bias or stress;

5) **Information Overload**;

6) **Differing Perceptions** of the same information;

7) **Lack of Feedback** to confirm understanding; and

8) **Complex Organisational Structures** that distort message flow.

Example of how modern technology can assist:

A platform like **Microsoft Teams** directly enhances communication effectiveness. It supports *clarity* and *concreteness* through real-time screen sharing and digital whiteboarding. It fosters *correctness* and *completeness* by allowing teams to co-edit documents in a centralised location, ensuring everyone works from a single source of truth. Furthermore, it helps overcome *physical barriers* by seamlessly connecting geographically dispersed team members, making distance irrelevant to collaboration.

Question 4

Q.4.1 Computer Ethics and AI Ethics

Computer ethics is defined as the analysis of the nature and social impact of computer technology and the corresponding formulation and justification of policies for its ethical use **(Moor, 1985).** It addresses perennial issues such as privacy, intellectual property, and professional responsibility in the digital realm.

AI Ethics represents a critical and urgent specialization of computer ethics. It takes the foundational principles established in computer ethics and applies them to the unique challenges posed by autonomous, data-driven systems. The relationship is evident in several key areas:

- **Bias and Fairness:** A core concern of computer ethics is justice. AI ethics confronts this through the problem of algorithmic bias, where AI systems can perpetuate and amplify societal biases present in their training data, leading to discriminatory outcomes in areas like hiring or criminal justice **(O'Neil, 2016).** This is a direct, scaled-up manifestation of an existing ethical dilemma.
- **Accountability and Transparency:** Computer ethics stresses responsibility. However, the "black box" nature of some complex AI models makes it difficult to

assign accountability for decisions. This creates a "responsibility gap" that challenges traditional frameworks of blame and liability in computing.

- **Autonomy and Control:** While computer ethics has long debated the social impact of technology, AI raises the stakes with questions about human oversight of autonomous systems that make decisions in critical domains like healthcare and warfare.

In summary, **AI Ethics can be viewed as computer ethics grappling with the implications of machine-led decision-making.** The core principles remain, but the context demands new frameworks and solutions to address the unprecedented scale and autonomy of AI systems.

Question 5

Q.5.1 Success Factors for High-Performance Effective Teams

High-performance teams do not emerge by chance; they are built on a foundation of several critical, interconnected factors. Research and practice suggest that the following elements are paramount for team success:

1. **A Unifying Shared Purpose:** The team is galvanised by a common, compelling goal that provides direction and motivation, ensuring all members are pulling in the same direction.
2. **Psychological Safety:** Perhaps the most critical factor, this is a shared belief that the team is safe for interpersonal risk-taking. Team members feel able to speak

up with ideas, questions, or concerns without fear of embarrassment or retribution, which is essential for innovation and learning **(Edmondson, 2018).**

3. **Clear Roles and Mutual Accountability:** While collaboration is key, each member understands their specific responsibilities and is held accountable for their contributions. This clarity prevents effort duplication and ensures all critical tasks are covered.
4. **Trust and Interdependence:** Team members have confidence in each other's competence and character. They rely on one another to succeed, understanding that the team's outcome is a collective achievement.
5. **Robust and Open Communication:** Communication is frequent, honest, and constructive. Team members practice active listening and engage in healthy debate, ensuring issues are surfaced and resolved quickly.
6. **Diverse and Complementary Skills:** The team possesses a balanced mix of expertise and perspectives, allowing it to tackle complex problems from multiple angles and be more adaptable and resilient.
7. **Effective Leadership and Support:** The team, whether led by a formal manager or a facilitator like a Scrum Master, receives the guidance, resources, and obstacle-removal needed to stay focused and productive.
8. **A Commitment to Continuous Improvement:** High-performing teams regularly reflect on their processes and outcomes. They adapt their strategies based on feedback and lessons learned, viewing every project as an opportunity to refine their effectiveness **(Lencioni, 2002).**

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