



ADMISSION NUMBER

School of Business

Master of Business Administration MBA Dual Specialization
Semester End Examination - Aug 2024

Duration : 180 Minutes
Max Marks : 100

Sem IV - MBIT6007 - Software Project Management

General Instructions

Answer to the specific question asked

Draw neat, labelled diagrams wherever necessary

Approved data hand books are allowed subject to verification by the Invigilator

- 1) Following the completion of a software project milestone, stakeholders express concerns about the project's performance. How would you conduct a basic assessment to identify areas for improvement and ensure stakeholder satisfaction? K3(6)
Q 1) Apply the simple metrics and techniques you would use to evaluate project success and drive future improvements.
- 2) A pivotal software project for GovSafety Tech, you are overseeing the development of a public safety application for a government agency. This vital project focuses on delivering real-time information about emergencies, disasters, and public safety measures to ensure swift and informed responses from the public. K4(8)

1) List the challenges and considerations in managing a software project focused on public safety. (4 Marks)

2) Contrast the importance of reliability, scalability, and collaboration with emergency services to ensure the effectiveness of the public safety application. (4 Marks)
- 3) Spearheading a software project for Civic Connect Solutions, you are at the forefront of developing a citizen engagement platform for a government agency. This platform is designed to facilitate seamless communication between citizens and government agencies, delivering services and information in a user-friendly manner. K4(8)

List the iterative and collaborative approaches you would use to gather feedback from both citizens and government stakeholders during the development of the citizen engagement platform.
- 4) How would you gather essential data for project termination, including evaluating project performance, K4(4)
- 5) At FinTech Innovations, you are at the helm of a pivotal software project aimed at developing an artificial intelligence (AI) solution. This solution aims to automate specific business processes for K3(9)

GlobalBank Corporation, a prominent financial institution with a focus on enhancing operational efficiency.

In the context of ethical considerations, how would you construct guidelines and protocols to ensure responsible and transparent development and implementation of AI solutions in the financial domain?

- 6) You are the project manager for a software development project that involves the creation of a Smart City solution using SCRUM. The project requires collaboration with various stakeholders, including city authorities, technology providers, and citizens. K5(10)

1) Measure the challenges and benefits of managing a Smart City project using SCRUM. (5 Marks)

2) Explain how you would manage interactive processes, prioritize features in a dynamic environment, and ensure effective communication among diverse stakeholders. (5 Marks)

- 7) A software project has an estimated size of 50 KLOC (Kilo Lines of Code) and is expected to have a Personnel Factor (PF) of 0.9. The Effort Adjustment Factor (EAF) for the project is determined to be 1.2. If the Nominal Productivity (NP) is 10 person-months/KLOC, calculate the effort required for this project using COCOMO. K5(10)

- 8) TechX, a technology startup, is initiating a complex software project with intricate user requirements. Propose advanced techniques for requirements elicitation, ensuring a thorough understanding of user needs. Explain how methods such as prototyping, use case modeling, and user stories can be integrated to enhance the accuracy and completeness of requirements. K5(15)

1) Explain how the use of prototyping in requirements elicitation for TechX's software project can facilitate a more interactive and iterative understanding of user needs, allowing stakeholders to visualize and refine the software functionalities before the final development phase. (8 Marks)

2) Explain how integrating use case modeling and user stories in the requirements elicitation process for TechX's software project can contribute to a comprehensive and user-centric approach, ensuring that the development team captures both high-level system behaviors (use cases) and specific user scenarios (user stories) for a more nuanced understanding of project requirements. (7 Marks)

- 9) In the heart of Silicon Valley, Tech Innovations Inc. stands at the forefront of technological advancement, pioneering innovations that shape the future of industries worldwide. As a beacon of innovation and disruption, the company has set its sights on a monumental endeavor: the development of a revolutionary autonomous vehicle (AV) platform known internally as "Project AutoPulse." K6(18)

Project AutoPulse represents Tech Innovations Inc.'s most ambitious project to date, aiming to redefine urban transportation

and revolutionize the way people commute, travel, and interact with their environment. At its core, Project AutoPulse envisions a future where self-driving vehicles seamlessly navigate city streets, highways, and urban landscapes, ushering in an era of safer, more efficient, and sustainable mobility.

The project's scope is vast and multifaceted, encompassing a broad spectrum of technological, regulatory, logistical, and ethical considerations. At every step of the way, Tech Innovations Inc. must navigate complex challenges and seize opportunities to realize the full potential of the Project AutoPulse platform.

Technological Complexity:

Developing an autonomous vehicle platform is no small feat. It requires pushing the boundaries of technological innovation across multiple domains, including artificial intelligence (AI), sensor technologies, robotics, and cybersecurity. The Project AutoPulse team must develop sophisticated AI algorithms capable of real-time decision-making, integrate cutting-edge sensor technologies for environment perception, and implement robust cybersecurity measures to ensure the safety and security of passengers and pedestrians alike.

Regulatory Hurdles:

Navigating the regulatory landscape governing autonomous vehicles presents a formidable challenge for Tech Innovations Inc. Compliance with safety standards, liability issues, and ethical considerations surrounding AV technology deployment requires close collaboration with regulatory agencies, policymakers, and industry stakeholders. The company must work tirelessly to address regulatory concerns, advocate for favorable policy frameworks, and establish industry standards to drive widespread adoption of autonomous vehicles.

Supply Chain Management:

Managing the intricate supply chain ecosystem for AV development poses logistical challenges for Tech Innovations Inc. Sourcing specialized components, such as LiDAR sensors, cameras, and processing units, from global suppliers while ensuring quality control, supply chain resilience, and cost efficiency is crucial for project success. The company must forge strategic partnerships, streamline logistics, and optimize procurement processes to overcome supply chain bottlenecks and meet project milestones.

Testing and Validation:

Validating the safety and reliability of autonomous vehicle systems through rigorous testing and validation processes is paramount for Tech Innovations Inc. Real-world testing in diverse environments, simulation of edge-case scenarios, and compliance with industry benchmarks are essential for gaining public trust, regulatory approval, and market acceptance. The company must invest in state-of-the-art testing facilities, develop comprehensive testing

protocols, and collaborate with regulatory authorities to ensure the integrity and robustness of the Project AutoPulse platform.

Ethical Considerations:

Addressing ethical dilemmas surrounding AV technology is a critical aspect of Tech Innovations Inc.'s mission. Moral decision-making algorithms, ethical implications of AV accidents, and societal impact of autonomous mobility require careful consideration and stakeholder engagement. The company must engage in open dialogue with stakeholders, foster transparency, and adhere to ethical principles to navigate complex ethical landscapes and build public trust in autonomous vehicles.

Market Competition:

Competing in a highly competitive market landscape presents a significant challenge for Tech Innovations Inc. The AV industry is dominated by tech giants and automotive industry incumbents, each vying for market share and technological supremacy. To differentiate the Project AutoPulse platform, the company must innovate relentlessly, deliver unparalleled performance, and provide an exceptional user experience. Building brand recognition, capturing market share, and establishing strategic partnerships are crucial for Tech Innovations Inc. to succeed in the fiercely competitive AV market.

Talent Acquisition and Retention:

Recruiting and retaining top-tier talent with expertise in AI, robotics, software engineering, and automotive design is essential for Tech Innovations Inc.'s success. In a competitive talent market, the company must develop robust talent acquisition strategies, foster a culture of innovation and collaboration, and provide career development opportunities to attract and retain the best and brightest minds in the industry.

Conclusion:

As Tech Innovations Inc. embarks on this transformative journey, it must navigate the complexities of autonomous vehicle development with vision, determination, and unwavering commitment to excellence. The success of Project AutoPulse hinges on the company's ability to overcome technological challenges, navigate regulatory hurdles, forge strategic partnerships, and inspire a new era of innovation in autonomous mobility. As the world looks to Tech Innovations Inc. for leadership in AV technology, the company stands poised to shape the future of transportation and drive meaningful change on a global scale.

Q 1) How should Tech Innovations Inc. navigate the intricate regulatory landscape surrounding autonomous vehicles to ensure compliance with safety standards, address liability concerns, and advocate for favorable policy frameworks? (Marks 5)

Q 2) What strategies should Tech Innovations Inc. employ to

overcome supply chain challenges, such as sourcing specialized components, ensuring quality control, and optimizing procurement processes, to meet project milestones and ensure the success of Project AutoPulse? (Marks 5)

Q 3) How can Tech Innovations Inc. address ethical considerations surrounding autonomous vehicle technology, such as moral decision-making algorithms and societal impact, while fostering transparency, engaging stakeholders, and building public trust in the Project AutoPulse platform? (Marks 5)

10) Given tasks:

K6(12)

Task A: Requirement Analysis (OT = 3 days, MT = 5 days, PT = 7 days)

Task B: Design (OT = 4 days, MT = 6 days, PT = 8 days)

Task C: Coding (OT = 5 days, MT = 7 days, PT = 9 days)

Task D: Testing (OT = 3 days, MT = 4 days, PT = 5 days)

Task E: Documentation (OT = 2 days, MT = 3 days, PT = 4 days)

Let's calculate the expected duration for each task and then sum them up to find the total expected duration of the project.