請於答案卷上依序作答，並註明作答的題號

試卷共四大題

1. Pull-based and push-based supply chain models are two supply chain strategies commonly adopted by companies.
   (a) What is the pull-based supply chain model? What is the push-based supply chain model? **(8 points)**
   (b) What are the advantages of the pull-based supply chain model? What are the advantages of the push-based supply chain model? **(8 points)**
   (c) When a company decides which supply chain model to adopt, what factors need to be considered by the focal company? Please list and explain some **company-specific, industry-level, and business-environment-level factors** that should be considered when deciding the best supply chain model for a company **(10 points)**

2. Assume that a leading bicycle-manufacturing company is currently evaluating two IT investment projects. The first IT investment project (called Mfc-BDA) is to develop a manufacturing big data analytics system for improving the manufacturing productivity and reduce defects in the manufacturing process. The second IT investment project (called Bike-IoT) is to explore the use of Internet of Things (IoT) technology to record riders' riding habits and monitor bikes' status (e.g., tire pressure) so that riding experiences and safety of riders can be enhanced.

   Clearly, these two IT investments, like any other IT investment projects, will involve firm-specific, competition, and market risks. Please answer the following questions.
   (a) Please list **two potential markets risks** that the Mfc-BDA project is likely to face. Please explain what these two market risks are and why they will undermine the benefit of the Mfc-BDA project to this bicycle manufacturing company. **(8 points)**
   (b) What are the **competition risks** that the Bike-IoT project may be exposed to? How this bicycle manufacturing company should do in order to minimize these competition risks? **(8 points)**

   Which type of risks (firm-specific risks, competition risks, or market risks) is more critical to the Mfc-BDA project? In other words, which type of risks should the focal company attempt to control so as to improve the likelihood that this IT investment project will succeed? **(8 points)**

3. Artificial Intelligence (AI) enables the creation of new branches of intelligent software systems. For example, the virtual makeup try-on tools allow users to narrow their selection before physically trying makeup products. Another example is the automatic form-filling component that converts hand-filled application forms to electronic records. At the core of these AI-enabled systems are deep-learning models that drive the overall process. One critical issue is the maintenance of deployed deep learning models embedded in these systems. What are the steps to maintain deployed models? What are the factors that may affect model maintenance? **(25 points)**

4. Estimating the costs of a software system is essential for a meaningful plan. Popular methods include function point analysis, COCOMI II, expert judgment, planning poker, and T-shirt sizing. Please answer the following questions.
   (a) Briefly explain these approaches **(10 points)**
   (b) Compare the optimal timing and usage of these approaches in terms of the Systems Development Process Model. **(15 points)**

試題隨卷繳回