**Innovation Management -Theory (20 points)**

**Q1 - (6 pt) Commentary** *Tim Cook has long said Apple seeks to “own and control the primary technologies behind the products that we make”. Cook laid out the goal in 2009, two years before he became chief executive, and producing its own chips has been the most visible result of this strategy. That has contributed to longer battery life and better overall performance of the iPhone. Yet even if not the primary incentive, the financial effects are likely to be significant. To say that Apple “makes” anything is to stretch the meaning of the word: it designs the product and controls the process, but subcontracts the actual assembly or manufacturing to others. As a result, the recent surge in its sales — and profits — has come without the need to pour more capital into its operations. Its return on capital employed jumped nearly 20 per percentage points in 2021, to 48 per cent. Last year it leapt again, to around 60 per cent. The impact of all of this on suppliers has also been profound. As Apple has claimed more of the design work, suppliers have been pushed towards lower-margin and more capital-intensive activities. That has led to a focus on scale and a concentration of the supply base.*

Based on the above extract of a recent Financial Times article:

* Discuss Apple’s strategic move and explain how ownership and control over product design produced the above-mentioned effects (an increase in technology performance and positive financial returns), while drastically absorbing margins from its supply chain partners;
* Find the elements related to closed and open innovation practices in this strategy, and discuss what could be, in your opinion, the potential risks (if any).

**Q2 - (4pt) Open question: Why can innovation be disruptive over entire industries (i.e. why do incumbent firms fail to tackle disruptive innovation?)** Briefly elaborate on the concept of disruptive innovation, and clarify the possible external (technology-market) and internal (managerial) determinants, making use of examples.

**Q3 - (2pt) Closed question Dominant designs tend to remain stable because … (select the correct answer)**

[\*] Network externalities, investments in complementary assets, economies of scale in production and organizational learning facilitate their establishment and may generate lock-in

[] Business model innovation exerts lock-in effects

[] Closed innovation and internal R&D, which are typical of the transition phase in the Abernathy-Utterback model, allow shorter learning curves

[] New technologies are highly appropriable

**Q4 – (2pt) Closed question Balancing exploration and exploitation in large established organizations can be described as: …. (select the correct answer)**

[] A trade-off in allocating resources between open and closed innovation strategies

[] A trade-off between patenting and disclosing

[\*] A trade-off in allocating resources between investing in the exploration of new knowledge, and the utilization of current knowledge and capabilities

[] A problem of appropriation of competencies

**Q5 (2pt) – Closed question High technological novelty and modest organizational impact are the two characteristics of… (select the correct answer)**

[] radical innovations

[] incremental innovations

[\*] modular innovations

[] architectural innovations

**Q6 - (2pt) Closed question Within the data value chain, data-based value creation clearly emerges from… (select the correct answer)**

[] the use of AI algorithms

[] the use of data analytics techniques

[\*] the creation of data objects

[] the creation of user interfaces

**Q7 - (2pt) Closed question The scale-up process of two-sided and multi-sided digital platforms benefits from (select the correct answer):**

[] Scale economies

[] Direct network effects

[] Localization economies

[\*] Direct and indirect network effects