## ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
## ORGANISATION OF ISLAMIC COOPERATION (OIC)
### DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT

Semester Final Examination                    Winter Semester, A. Y. 2022-2023
Course No.    : BTM 4531                       Time         : 3 hours
Course Title  : Product and Service Development   Full Marks   : 150

Answer **all 6 (six)** questions. All questions carry equal marks. Marks of each question and corresponding CO and PO are written in the right margin with brackets.

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1. a) Define the strategy of locating in an unoccupied space for new product development. Why might a firm end up choosing an interior position in the unoccupied space region? — 09 (CO2) (PO3)

   b) Explain the relationship between product and process innovation. Which is easier for a firm to launch in the market? Justify your opinion with example. — 10 (CO1) (PO1)

   c) Why global thinking and cross-cultural literacy is important for a product manager? — 06 (CO1) (PO1)

2. a) Why does innovation process need an organizational context with having proper integration of creative individuals, firm's operating activities and firm's external linkage? Explain. — 08 (CO3) (PO6)

   b) How can you relate innovation and technology diffusion with technology adoption in market? Give an example. — 08 (CO3) (PO6)

   c) Develop a new service by your own based on two-dimensional taxonomy. Graphically present your newly developed service. — 09 (CO3) (PO6)

3. a) "Product management can cause conflict because the product manager has limited functional authority over many parts of the development, marketing, and sales of the product, but may nevertheless have bottom-line responsibility."
   Based on the above statement answer the following:
   i) What are the challenges a product manager faces to perform his responsibility?
   ii) What might be the solutions of those challenges? — 09 (CO1) (PO1)

   b) If consumers are unwilling to embrace new products that impose a high degree of change in consumption pattern for consumers, does this mean that firms should introduce only products that are similar to existing products? Justify your opinion. — 08 (CO2) (PO3)

   c) Briefly illustrate the implications of lead users of market adoption with example. Discuss the merits and limitations of lead users as a source of innovations. — 08 (CO2) (PO3)

4. a) What is lean six sigma? How does lean six sigma enhance business excellence as well as customers satisfaction for a new product development. Give an example. 09 (CO3) (PO6)

b) The major objective of Design for Six Sigma (DFSS) is to "design it right the first time" to avoid painful downstream experiences. Do you agree with this statement? Justify your opinion. 08 (CO3) (PO6)

c) "Do it right the first time" is an old adage, referring to the fact that poor quality-of-execution usually results in much waste by having to go back to fix things. Sadly, quality-of-execution is notably lacking in many new product projects. Beginning decades ago, the causes of new product failure were identified, and revealed serious deficiencies in the way new product projects were executed: a lack of market research, poorly implemented launches, weak business cases, and so on. Today, however, product developers face many new challenges: The world is faster, more global, less predictable, and more ambiguous than it was when those early articles were written. And there have been many new practices introduced to NPD (New Product Development) since then in order to deal with these challenges.

Now analyse the statement with example "Speed ... but not at the expense of quality of execution". 08 (CO3) (PO6)

5. a) Identify the different types of innovations in different scopes. Why is breakthrough product, service or process development so difficult? Discuss with example. 10 (CO3) (PO6)

b) Explain the following concepts with examples:
   i. Cannibalization of product, process and service
   ii. Frugal innovation
   iii. Total quality management 15 (CO1) (PO1)

6. **Is AI Coming for Your Job** 25 (CO3) (PO6)

The launch of ChatGPT seems to have reignited doomsday fears about artificial intelligence (AI) replacing workers' *job*. Are these fears prescient or overblown? A recent survey shows 62 percent of Americans think AI will significantly impact work and jobholders over the next 20 years, yet only 28 percent believe the technology will affect them personally. The deep learning-based AI tools that are now being introduced will have a profound impact on the labor market, leading to the eventual elimination of many jobs and the restructuring of many others. The effect will be particularly acute among knowledge workers—those who do what has been traditionally defined as non-routine cognitive work. Many people in such roles have been insulated from automation and globalization. That is about to change.

The change is likely to follow a path similar to one a character in Ernest Hemingway's *The Sun Also Rises* used to describe his descent into bankruptcy: It occurred in "*Two ways gradually and then suddenly.*" Companies will move slowly to deploy generative AI technology like that embodied in OpenAI's ChatGPT. Harnessing the immense pool of data underlying it will require the development of proprietary machine learning systems, requiring companies to add talent that is in short supply.

Historically, technological revolutions have created more jobs than they have destroyed. The real concern that people should have about whether they will be replaced by those who have a digital mindset, which is the ability to see new possibilities and chart a path for the future using data, algorithms, AI, and machine learning. The advent of the calculator didn't make math less important, but it did change what mathematical skills became important to organizations and, importantly, how we taught math in schools. It became less important for engineers building rockets at NASA, for example, to solve complex math problems in their heads. The ability to structure a problem or goal as a set of mathematical equations that the calculator could solve became more important. The calculator became an invaluable tool for rocket science, but it did not remove the need for math, engineering, or deep problem-solving by humans. In fact, since calculators were invented, engineering and managerial "miscalculations" have still occurred during attempts to put rockets into space because human decision-making and judgment continue to play vital roles in problem-solving.

**Answer the following:**

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| i. | How can artificial intelligence restructure job opportunities in real business world? Give examples. | 08 |
| ii. | What might be the devastating challenges of AI that causes shrinking the employment opportunity? Give examples. | 07 |
| iii. | Are you developing your skills that can't be automated? Which are those skills? In which sector these skills will help you to enhance your competencies? Explain. | 10 |