

## Course Assessment Test

<b>Course Title</b>	Introduction to Digitalization, Digital Transformation and Data Science	<b>Date</b>	June 2024
<b>Name</b>		<b>Dept</b>	

- 1) This assessment test is to be given out before course commencement. Answers are to be filled in column entitled "Pre-Course Answer"
- 2) At the end of the course, the same assessment sheet is to be given out where answers are to be filled in column entitled "Post-Course Answer". Instructor will then share the answers and participants need to total the score in both "Pre" and "Post" columns through self-marking.
- 3) Assessment sheets will be collected for filling.

No	Question	Pre-Course Answer	Post-Course Answer
1	<p>Identify the correct pairing of technology terms to their actual meaning</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> T1. Digitization  T2. Digitalization  T3. Digital Transformation </div> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> M1. Encoding analog information into digital format  M2. Using digital technologies to transform existing business model  M3. Leveraging on digital technologies to transform every aspect of organization structure to make it fully customer driven end-to-end </div> <p>a) T1-M1, T2-M2, T3-M3  b) T1-M2, T2-M1, T3-M3  c) T1-M1, T2-M3, T3-M2  d) T1-M2, T2-M3, T3-M1</p>		A
2	<p>Identify the key benefits of digital transformation within an organization</p> <p>i. Enriching data collection for better analysis and improving decision making  ii. Boosting productivity through process automation  iii. Improving quality, traceability and consistency of data  iv. Increasing the quality of customer and employee experience</p> <p>a) Items i), ii) and iii)  b) Items i), ii) and iv)  c) Items i), iii) and iv)  d) All items</p>		D

## Course Assessment Test

3	<p>Identify the key features of digital business models</p> <ul style="list-style-type: none"> <li>i. Business models are often novel and disruptive to current market environment</li> <li>ii. They are usually easily scalable due to digital services being easily duplicated and automated</li> <li>iii. They typically involve funding via digital banks or new fintech funding opportunities</li> <li>iv. Customer centric with a focus on digital channel for customer acquisition and providing frictionless digital experience</li> </ul> <ul style="list-style-type: none"> <li>a) Items i), ii) and iii)</li> <li>b) Items i), ii) and iv)</li> <li>c) Items i), iii) and iv)</li> <li>d) All items</li> </ul>		B
4	<p>Which of the following digital business models offer the ability to access some functionality of the services / products for free?</p> <ul style="list-style-type: none"> <li>i. Freemium</li> <li>ii. Ecosystem</li> <li>iii. Advertising supported</li> <li>iv. Open source</li> </ul> <ul style="list-style-type: none"> <li>a) Items i), ii) and iii)</li> <li>b) Items i), ii) and iv)</li> <li>c) Items i), iii) and iv)</li> <li>d) All items</li> </ul>		C
5	<p>The following are descriptive features of cloud computing <b>EXCEPT</b>:</p> <ul style="list-style-type: none"> <li>a) Infrastructure is typically provided for free, but consumers subscribe for rental of the platform (PaaS) and deployed services (SaaS)</li> <li>b) Uses a pay-as-you on-demand model where customers are charged only for resources used</li> <li>c) Particularly useful for startups to start operations and scale quickly to a global customer base</li> <li>d) Deployed in 3 main categories: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS)</li> </ul>		A
6	<p>Identify which of the following statements <b>most accurately</b> describes a digital twin, one of the enabling technologies for digital transformation</p> <ul style="list-style-type: none"> <li>a) A virtual model that is used to directly control the operations of a physical object to mitigate dangers of unsafe environments</li> <li>b) A virtual model designed to accurately reflect a physical object, on which simulations can be run to enhance the operation of its physical counterpart</li> <li>c) Two virtual models that are created in parallel from a physical object in order to run</li> </ul>		B

## Course Assessment Test

	<p>simulations to determine which particular enhancement is more likely to benefit the physical object</p> <p>d) Two virtual models that reflect an evolution of a particular additive manufacturing or 3D printing approach</p>		
7	<p>Identify the <b>most accurate</b> description of machine learning from the descriptions below</p> <p>a) Subfield of data science that involves software algorithms that can aggregate together large datasets in order to summarize their key statistics</p> <p>b) Subfield of data science that involves software algorithms which are progressively refined by a developer based on feedback from a team of business analysts</p> <p>c) Subfield of AI that focuses on software algorithms that are capable of learning to optimize performance in a specific task, such as making accurate predictions</p> <p>d) Subfield of AI that focuses on software algorithms that are capable of learning to discover erroneous analytical operations on a dataset previously worked on by human analysts</p>		C
8	<p>Identify which of the following are key subcategories within machine learning?</p> <p>i. Supervised Learning</p> <p>ii. Reinforcement learning</p> <p>iii. Refocused learning</p> <p>iv. Deep learning</p> <p>a) Items i), ii) and iii)</p> <p>b) Items i), ii) and iv)</p> <p>c) Items i), iii) and iv)</p> <p>d) Items ii, iii) and iv)</p>		B
9	<p>What is the main difference between regression and classification in machine learning?</p> <p>a) Regression is used to perform prediction based on historical data, while classification is used to perform prediction based on patterns from current and historical data</p> <p>b) Classification is used to categorize the accuracy of predictions generated from a regression algorithm.</p> <p>c) Regression is used to predict a continuous target variable, while classification is used to predict a categorical target variable</p> <p>d) Regression is used to predict a categorical target variable, while classification is used to predict a continuous target variable</p>		C
10	<p>Identify the following statements that correctly describe the supervised learning approach in machine learning (ML)</p> <p>i. The ML model is created by providing a labelled data set as input to a ML algo</p> <p>ii. The dataset contains independent / feature variables which influence the dependent</p>		A

## Course Assessment Test

	<p>or dependent / target variable (the label)</p> <p>iii. The ML model is a mathematical function that best approximates the relationship between independent variables and dependent variable, which is then used to make prediction of dependent variable values for a set of new independent variables</p> <p>iv. The process of creating the ML model is termed training / fitting the model on the dataset</p> <p>a) Items i), ii) and iii) b) Items i), ii) and iv) c) Items i), iii) and iv) d) All items are correct</p>		
<b>Total</b>			