



Even Semester End Term Examinations, May/June 2026

Date: 18/05/2026

Time: 01.00 PM - 04.00 PM

Course Code: MBA3049

Course Name: Industry 4.0

Semester: Fourth Semester

Max. Marks: 100

Weightage: 50%

CO - Levels	CO1	CO2	CO3	CO4
Marks	6	26	64	44

Part A: Answer Following Questions. 30 M

Qn.No	Questions	M	CO	BT
1	Explain the role of digital transformation in driving the need for business transformation.	3	CO1	BT2
2	The Internet of Things (IoT) connects physical devices through sensors and software, enabling real-time data collection and communication. Explain the transformation of business operations using Internet of Things (IoT) with suitable examples.	3	CO1	BT2
3	Geospatial Technologies is a latest addition to industry 4.0. Explain geospatial technologies support decision-making in organizations.	3	CO2	BT2
4	SaaS and PaaS are enablers of agile, cost-efficient business operations. Discuss two major concerns of SaaS and PaaS.	3	CO2	BT2
5	Robotic process automation (RPA) is a software technology. Explain any TWO benefits of RPA.	3	CO3	BT2
6	Generative AI minimizes human bias by providing objective, data-backed performance metrics. Articulate three sources of employee's performance data for Generative AI.	3	CO3	BT2
7	List the three major disruptive inventions identified as the foundation of the Industry 4.0 market.	3	CO3	BT2
8	Write short notes on: (a) IaaS (b) PaaS and (c) SaaS.	3	CO4	BT2
9	Distinguish between a sensor and an actuator in the context of a Cyber-Physical System (CPS).	3	CO4	BT2
10	Explain the concept of Value Innovation in Industry 4.0 and illustrate it with a suitable industry example.	3	CO4	BT2

Part B: Answer Any 1 Following Questions. 10 M

Qn.No	Questions	M	CO	BT
11	Organizations today are integrating physical processes with digital technologies to improve automation, monitoring, and real-time decision-making in complex environments. Apply the concept of Cyber-Physical Systems architecture to explain how a smart manufacturing system operates. Illustrate the interaction of different components of CPS architecture to improve efficiency and reliability.	10	CO2	BT3
12	Use DIKW pyramid (Data, Information, Knowledge, Wisdom) to transform raw data into data insights for business intelligence by taking any suitable industry example.	10	CO2	BT3

Part C: Answer Any 1 Following Questions. 10 M

Qn.No	Questions	M	CO	BT
13	With the growing need for secure, transparent, and tamper-proof systems, organizations are adopting advanced digital technologies to improve trust and efficiency in transactions. Apply the concept of Blockchain Technology to explain how it works in a real-world scenario such as supply chain management. Illustrate the step-by-step process involved in recording and verifying transactions.	10	CO3	BT3
14	The Resource Based View (RBV) of the firm starts from the concept that a firm's performance is determined by the resources it has at its disposal. Interpret the above statement with Data as strategic resource for any business.	10	CO3	BT3

Part D: Answer Any 1 Following Questions. 10 M

Qn.No	Questions	M	CO	BT
15	In today's data-driven environment, organizations must convert raw data into meaningful insights to support effective decision-making and strategic planning. Apply the concept of the DIKW Pyramid to explain how a retail business can transform raw sales data into strategic decisions. Illustrate each stage with suitable examples.	10	CO3	BT3
16	Apply the concept of Knowledge Management to an Industry 4.0 organisation by illustrating how knowledge sharing enhances workplace effectiveness, demonstrating why organisations must invest in knowledge management systems, and showing the benefits that effective knowledge management delivers to organisational performance.	10	CO3	BT3

Part E: Answer Any 1 Following Questions. 10 M

Qn.No	Questions	M	CO	BT
17	Modern engineering practices are increasingly integrating human intelligence with digital technologies and physical systems to create more adaptive, intelligent, and user-centered solutions. Apply the concept of Design Engineering 4.0 from a human-cyber-physical perspective to explain how a smart healthcare system can be designed. Illustrate the interaction of human, cyber, and physical components to improve system performance.	10	CO4	BT3
18	Apply your understanding of Data Warehouse (DwH) architecture and the ETL (Extract, Transform, Load) process to illustrate their functioning, demonstrate how data warehousing is used in an Industry 4.0 environment, and show how cloud-based data warehousing along with AI/ML is transforming the future of data management.	10	CO4	BT3

Part F: Answer Following Questions. 30 M

Qn.No	Questions	M	CO	BT
19	Francisco Textiles, a traditional garment manufacturing company, decided to adopt Industry 4.0 technologies such as IoT-enabled machines, automation, and data analytics to improve efficiency and reduce production time. The management expected increased productivity and better-quality control through real-time monitoring of operations. During implementation, the company faced several challenges. The first issue was integration of new technologies with existing legacy systems, which caused delays and operational disruptions. Machines from different vendors were not compatible, making data sharing difficult. Secondly, the workforce struggled to adapt to the new systems. Many employees lacked digital skills and were resistant to change due to fear of job loss. This led to errors in handling automated systems and reduced overall productivity during the transition phase. Another major concern was cybersecurity risks. As machines and systems became interconnected, the company became vulnerable to data breaches and cyberattacks, putting sensitive business information at risk. Discussion Questions: 1. Apply suitable solutions to overcome the integration challenges faced by Francisco Textiles. 2. Apply strategies to address employee resistance and skill gaps in this scenario.	15	CO3	BT3

	3. Apply appropriate measures to manage cybersecurity risks in Industry 4.0 implementation.			
20	A smart manufacturing company is adopting Industry 4.0 technologies to improve its overall operations. In the design and development stage, it uses digital tools to simulate product prototypes. In production, IoT-enabled systems monitor quality in real time, while automated inventory systems track stock levels and reduce shortages. The company also uses digital platforms to enhance sales and customer service, providing personalized recommendations and faster response times. Additionally, plant safety and security systems are integrated with sensors and alerts to prevent accidents, and facility management is optimized using data-driven insights. Despite these advancements, the company wants to ensure that all domains work in an integrated and efficient manner. Discussion Questions: (a) Determine the usage of Industry 4.0 technologies to integrate engineering, inventory management, and quality control for improved operational efficiency. (b) Apply digital solutions in sales, customer service, and plant safety to enhance customer satisfaction and workplace security in the organization.	15	CO4	BT3