Register No.: ..... Name.: .....

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

FOURTH SEMESTER MBA DEGREE EXAMINATION (R), MAY 2023
(2021 Scheme)

Course Code : 21MBA204

Course Name: Industry 4.0

Max. Marks : 60 **Duration: 3 Hours**

PART A

(Answer all questions. Each question carries 2 marks)

1. Outline any four features of Industry 4.0?
2. Compare IoT and IIot.
3. List any four benefits of Artificial Intelligence (AI) in the context of HR and Organizational Development?
4. Summarize Continuous Adaptive Learning.
5. Explain any four significances of cyber security.

PART B

(Answer any 3 questions. Each question carries 10 marks)

6. Explain the challenges of implementing Industry 4.0 and suggest possible solutions to overcome the challenges and ensure the sustainable growth of Industry 4.0?
7. Illustrate the concept of machine learning and explain the various types of machine learning algorithms?
8. How can Industry 4.0 technologies and cyber-physical systems be utilized to eliminate waste in advanced manufacturing systems? Explain.
9. Classify the different types of skill sets that employees need to possess in order to adapt to the changing scenario of Industry 4.0? Provide a detailed explanation.
10. Critically analyze the implications of Cybersecurity in the context of Industry 4.0, and enumerate the various types of Cyber Attacks?

PART C

(Compulsory question, the question carries 20 mark)

11 Streamline Industries, a leading manufacturer of automobile components, was facing several challenges such as increasing competition, cost pressure, and declining profit margins. To overcome these challenges and remain competitive, Streamline Industries decided to embrace Industry 4.0 technologies, specifically the Industrial Internet of Things (IIoT) and Lean Manufacturing principles. Streamline Industries's objective was to achieve a technology-driven production system that can improve quality, increase efficiency, and reduce costs.The first step in Streamline Industries's transformation journey was to adopt IIoT. They deployed sensors, connected devices, and analytics software to monitor and optimize their manufacturing processes. This helped them to track real-time data such as production rates, quality, and machine utilization. With the help of data analytics, they were able to identify bottlenecks, inefficiencies, and defects in their production process.The second step was to adopt Lean Manufacturing principles. Streamline Industries implemented a series of process improvements such as reducing setup times, optimizing production flows, and eliminating waste. They also focused on continuous improvement and involved their employees in identifying and addressing problems in the production process.

Through this transformation, Streamline Industries was able to achieve several benefits. They were able to increase their production efficiency by 20%, reduce their scrap and rework by 30%, and improve their quality by 25%. This resulted in a significant reduction in their production costs and increased their profitability.

In addition, Streamline Industries was able to improve their customer satisfaction by delivering high-quality products on time. They also gained a competitive advantage by becoming more agile and responsive to changing customer demands.Overall, Streamline Industries's transformation to a technology-driven production system through IIoT and Lean Manufacturing was a success. They were able to achieve significant improvements in efficiency, quality, and cost reduction, which helped them to remain competitive in the market.

a) How did IIoT help Streamline Industries to improve their manufacturing process? Explain with examples. Marks (8)

b) What were the benefits that Streamline Industries achieved through Lean Manufacturing? Marks (6)

c) How did it help them to remain competitive? Marks (6)

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