KUMARAGURU
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M.TECH. DEGREE EXAMINATIONS: APRIL / MAY 2023

(Regulation 2018)

Second Semester

MASTERS OF TECHNOLOGY MANAGEMENT

P18TMT2105: Industrial Digital Transformation

COURSE OUTCOMES

CO1: Understand the drivers and enablers of Industry 4.0.

CO2: Discover the smartness in smart Factories, smart cities, smart products, and smart services.

CO3: Able to outline the various systems used in a manufacturing plant and their role in an Industry 4.0 world.

CO4: Understand the power of cloud computing in a networked economy.

CO5 Demonstrate the opportunities, challenges brought about by Industry 4.0 and how. organisations and individuals should prepare to reap the benefits.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 1 = 10 Marks)

1. In which year was the term Industry 4.0 first introduced? CO1 [K2]
   a) 2009 b) 2010
   c) 2011 d) 2012

2. Which country's government introduced the Industry 4.0 concept? CO1 [K2]
   a) USA b) France
   c) Germany d) China

3. Which one of the following statements are true? CO2 [K2]
   a) IoT is a subset of IIoT b) IIoT is a subset of IoT
   c) All the devices in IoT are connected to the internet d) All IIoT devices are connected to the internet

4. The cobots assured human safety by having no internal source of _____ CO3 [K2]
   a) General motors b) Safe equipment
   c) Industrial material d) Motive power

5. What are the features of cyber security? CO4 [K2]
   a) Compliance b) Defense against internal threats
   c) Threat Prevention d) All of the above

6. Predictive analytics uses statistics and _____ to determine future performance. CO5 [K2]
   a) Algorithmic techniques b) Modeling techniques
   c) System development and design techniques d) None of the mentioned above

7. Amongst which of the following is / are the correct workflow of predictive analytics   CO5   [K₂]
   a) Import data → Clean the data → Develop a predictive model → Integrate the model
   b) Clean the data → Develop a predictive model → Import data → Integrate the model
   c) Clean the data → Develop a predictive model → Import data → Integrate the model
   d) None of the mentioned above

8. What is/are the essential components of a smart factory?   CO3   [K₂]
   a) Smart Machines
   b) People at Work
   c) Trained Personnel
   d) All of the above

9. Which layer is used for wireless connection in IoT devices?   CO4   [K₂]
   a) Application layer
   b) Network layer
   c) Data link layer
   d) Transport layer

10. What is the full form of IDE in Arduino IDE IoT software?   CO3   [K₂]
   a) Intra Defence Environment
   b) Intra Development Environment
   c) Integrated Development Environment
   d) Integrated Deployed Environment

PART B (10 x 2 = 20 Marks)

11. Compare and contrast the characteristics of an Industry 4.0 factory with a traditional factory.   CO1   [K₂]

12. Name three countries that have made significant developments in the field of Industry 4.0.   CO1   [K₁]

13. Explain the concept of predictive analytics and its role in smart business transformation.   CO3   [K₂]

14. Provide three examples of smart technologies associated with Industry 4.0.   CO2   [K₁]

15. What are the 5 V's of Big Data?   CO4   [K₂]

16. Compare Edge Computing with Cloud Computing.   CO4   [K₂]

17. Give two examples of case studies that showcase the applications of Industry 4.0 principles.   CO5   [K₂]

18. What are the three main driving forces behind Industry 4.0?   CO1   [K₁]

19. Can you list the various industrial revolutions in chronological order?   CO1   [K₁]

20. Discuss the importance of cloud computing in the context of Industry 4.0.   CO4   [K₁]

PART C (6 x 5 = 30 Marks)

21. What are the 5 Key Drivers or Enablers of Industry 4.0.   CO1   [K₁]

22. Compare IoT and IIoT.   CO2   [K₂]

23. What are the risks of an industry 4.0 solution?   CO3   [K₁]

24. Explain the 5 types of data analysis.   CO4   [K₂]

| 25. | List 6 ways in which Predictive Analysis can transform Business. | CO5 | [K₁] |

25. List 6 ways in which Predictive Analysis can transform Business. CO5 [K_1]

26. Define robotics automation and explain its significance in modern industries. CO3 [K_1]

Answer any FOUR Questions
PART D (4 x 10 = 40 Marks)

27. Discuss the concept of smart cities and their relationship with Industry 4.0. CO2 [K_2]

28. Compare and contrast an Industry 4.0 factory with a traditional factory. CO1 [K_3]

29. Discuss the resource-based view of a firm and explain how data is considered a new resource for organizations in the Industry 4.0 era. CO5 [K_4]

30. Discuss the significance of predictive analytics in Industry 4.0. CO2 [K_2]

31. What are Industry 4.0 Laboratories? Discuss the role of Industry 4.0 laboratories in driving innovation. CO3 [K_2]

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