KUMARAGURU
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B.E DEGREE EXAMINATIONS: NOV/DEC 2022

(Regulation 2018)

Seventh Semester

MECHANICAL ENGINEERING

U18MET7003 Digital Manufacturing

COURSE OUTCOMES

CO1: Illustrate the Digital Manufacturing techniques with suitable applications.
CO2: Explain features of Digital Factory and PLM concepts.
CO3: Summarize the various features of IoT concepts.
CO4: Explain Industry 4.0 standards with relevance to industrial context.
CO5: Explain the intelligent systems in the Manufacturing environment.
CO6: Explain the IoT applications in the Industrial Environment.

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

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1. Define Tool path generation.	CO1	[K$_2$]
2. List out the applications of simulation in manufacturing.	CO1	[K$_2$]
3. State the need for Virtual Manufacturing System.	CO2	[K$_2$]
4. List out any two PLM softwares.	CO2	[K$_2$]
5. Define Internet of Things (IoT).	CO3	[K$_2$]
6. State the important components of Internet of Things.	CO3	[K$_2$]
7. Define Industry 4.0.	CO4	[K$_2$]
8. Define Value chain.	CO4	[K$_2$]
9. List out any four Industrial IoT applications.	CO5	[K$_2$]
10. Give your understanding about Facility Management.	CO6	[K$_2$]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Explain the Architecture of Digital Manufacturing System with neat sketch.	8	CO1 [K$_3$]
	b)	Discuss in detail about design process and role of CAD in Digital Manufacturing.	8	CO1 [K$_2$]
12.	a)	Explain Functionality of the PLM Systems	8	CO2 [K$_3$]

b)	Explain Virtual factory simulation.	8	CO2	[K$_2$]

13. Demonstrate the Architecture of IoT with its Technological challenges. 16 CO3 [K$_3$]

14. a) Compare Industry 4.0 Factory and today's Factory without Industry 4.0. 8 CO4 [K$_3$]

     b) Discuss about BLOCK Chain and Value chains in manufacturing Companies. 8 CO5 [K$_2$]

15. Enumerate with a case study the implementation IoT in Food Industry. 16 CO6 [K$_3$]

16. Discuss with an example the application of IoT in Inventory Management & Quality Control. 16 CO6 [K$_3$]

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Please indicate knowledge level (K$_1$toK$_6$) and Course Outcome level (CO1 to CO5) against each question for each subdivision.