DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE
Regular End Semester Examination – Summer 2022

Course: B. Tech. **Branch : Electrical Engineering** **Semester : VIII**

Subject Code & Name: BTEEP801.6 **Introduction to Industry 4.0 and Industrial Internet of Things**

Max Marks: 60 **Date: 04/07/2022** **Duration: 3.45 Hr.**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		**2 x 6**
A)	Define actuators, give its classification and discuss working of electric linear actuator with neat diagram.	(L3/CO1)	
B)	With the help of protocol diagram discuss working of Message Queue Telemetry Transport system.	(L3/CO1)	
C)	Discuss emerging issues and their sustainability assessment for IIoT.	(L3/CO1)	
Q.2	**Solve Any Two of the following.**		**2 x 6**
A)	Define product lifecycle management and discuss its role in industry 4.0	(L3/CO2)	
B)	State merits of industrial internet and discuss its application in power plant.	(L3/CO2)	
C)	What do you mean by KUKA? With suitable diagram explain its working.	(L3/CO2)	
Q. 3	**Solve Any Two of the following.**		**2 x 6**
A)	Describe in brief, working of temperature sensor interface circuit using LM35 and DS1621.	(L3/CO3)	
B)	With the help of block diagram discuss the working of gas sensing system.	(L3/CO3)	
C)	Write and discuss the transmitter program for Xbee transmitter	(L3/CO3)	
Q.4	**Solve Any Two of the following.**		**2 x 6**
A)	Describe Machine learning and Deep learning in Industrial Internet of Things analytics.	(L3/CO4)	
B)	Draw and discuss fog computing architecture for Industrial Internet of Things.	(L3/CO4)	
C)	With the help of suitable diagram discuss the protocol stack for SD-6TiSCH.	(L3/CO4)	
Q. 5	**Solve Any Two of the following.**		**2 x 6**
A)	Define digital twin and discuss the smart grid in power system with suitable diagram.	(L3/CO5)	
B)	Discuss the work-flow of oil and gas industry with respect to IoT.	(L3/CO5)	
C)	Describe the application of UAV in forestry.	(L3/CO5)	

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