Question Paper

MANIPAL ACADEMY OF HIGHER EDUCATION

VII Semester End Semester Examination
Industrial Internet of Things (ICE 4071)

Industrial Internet of Things [ICE 4071]

Marks: 50   **Duration: 180 mins.**

Descriptive Questions

Answer all the questions.   Section Duration: 180 mins

1)			
A)	Write a note on industrial evolution and Industry 4.0. [CO1, PO1, BL1, M3]	(3)
B)	What do you understand from connection oriented and connection less network services? Explain with necessary flow chart. [CO1, PO1, BL2, M4]	(4)
C)	Draw the five layer structure of IoT architecture and explain the function of each layer in detail. [CO2, PO5, BL2, M3]	(3)
2)		
A)	Draw the architecture of a smart sensor and explain the working of all its components. [CO2, PO5, BL2, M3]	(3)
B)	Consider a pressure tank with the capacity of 0 to 2 kg/m2. A pressure transmitter is used and calibrated to give an output of 4 to 20 mA. A data acquisition card with a resolution of 10 bit is used with an input range of 0 to 20 mA. If the pressure value is 0.6 kg/m2, calculate the binary value that will be stored in the memory of the system. Also find out what is the input pressure change and transmitter change, if there is a 1bit change in the memory (minimum detectable pressure). [CO3, PO4, BL4, M3]	(3)
C)	Draw the Level 6 structure of IoT and discuss its features. [CO3, PO5, BL3, M4]	(4)
3)		
A)	What do you understand from WiFi? Write a note on the elements and standards of WiFi network. [CO3, PO6, BL3, M3]	(3)
B)	Discuss the features of Node-Red as an IoT platform. [CO4, PO5, BL2, M3]	(3)
C)	Draw the pin out diagram of Arduino Uno and explain. [CO4, PO5, BL2, M4]	(4)
4)		
A)	List the features of Node.js. [CO4, PO1, BL3, M3]	(3)
B)	Discuss the traditional web development procedure and full stack java script development with necessary figure. [CO4, PO1, BL2, M4]	(4)
C)	Write a program code to display alternate number from 1 to user inputted value on Arduino IDE. Also display the number of elements in the result. [CO5, PO5, BL3, M3]	(3)

5)   Write a note on json object syntax rule.   (3)

A)   [CO5, PO1, BL2, M3]

B)   Compare json file format with xml file format with an example.   (3)
                [CO5, PO1, BL2, M3]

C)   Write a note on SaaS, PaaS and IaaS with necessary figure.   (4)
                [CO5, PO6, BL1, M4]

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