Exam Date & Time: 07-Dec-2023 (09:30 AM - 12:30 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

END SEMESTER EXAMINATION- NOV/DEC 2023
III SEMESTER B.TECH. (INDUSTRIAL ENGINEERING)

INDUSTRIAL INTERNET OF THINGS [MIE 2126]

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

A

Answer all the questions.

Missing data may be suitably assumed

1) Describe about the 3-Tier architecture of industrial internet reference architecture with a neat schematic diagram. (4)

A)

B) Analyze the function of the operations domain in an industrial internet reference architecture network. (3)

C) Analyze the different aspects of business models employed in industrial internet reference architecture. (3)

2) List the edge computing applications in various technological and industrial domains. (4)

A)

B) Compare the architecture of edge and cloud networks with respect to their functional attributes. (3)

C) Describe about the different cloud services provided by companies for their businesses. (3)

3) As an industrial engineer, if you have to employ a big analytics tool for open-source real-time computation then which tool would you apply, and elaborate on its features. (4)

A)

B) Compare the different network topologies of IIoT with a neat labelled diagram. (3)

C) Explain about different communication networks and field buses employed in the data acquisition system of IIoT. (3)

4) Interpret the communication mechanism employed in Profibus DP and Profibus PA as a part of the industrial data acquisition system of IIoT. (4)

A)

B) Illustrate about the wireless HART communication protocol employed in the industrial data acquisition system with a neat labeled diagram. (3)

C) Identify and elaborate on the security features of Wireless HART. (3)

5) Analyze about the different challenges of the IIoT system in manufacturing sector. (4)

A)

B) Illustrate about the various IIoT analytics employed in the industries. (3)

C) In machine learning compare the linear and logistic regression models with suitable examples. (3)

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