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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATIONS- 2026

B.Tech-VIII Semester (Open Elective ECE)

COURSE CODE (CREDITS):18B1WEC843(3)

MAX MARKS: 25

COURSE NAME: INDUSTRIAL INTERNET OF THINGS

COURSE INSTRUCTOR: Er. Munish Sood

MAX. TIME: 1 Hour 30 Min

*Note: (a) All questions are compulsory.*

*(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*

*(c) Use of calculator is not allowed*

Q.No	Question	CO	Marks
Q1	a) Explain in detail about the physical layer used in ZigBee 6LoWPAN.  b) What are the different transmission layer options in IEEE 802.15.4 used for ZigBee 6LoWPAN?  c) What are the functions of the IEEE 802.15.4 MAC layer?  d) What are the different types of MAC frames specified in 802.15.4 ?	2	(2+1+1+1=5)
Q2	a) What is WirelessHART (Highway Addressable Remote Transducer Protocol)?  b) Differentiate between WirelessHART and IEEE 802.15.4 ?	2	(2.5+2.5=5)
Q3	a) How does CDMA work ? Explain its working with the use of orthogonal Walsh codes.  b) Assume four stations $D_1, D_2, D_3$ and $D_4$ using a common CDMA channel for communication. Let their data bits be +1, -1, 0 and +1. How would the data be sent over the common CDMA channel? How would the receiver retrieve the data bit of station $D_2$ ?	2	(2+3=5)
Q4	a) What is Bluetooth Low Energy(BLE)? Differentiate between BLE and classical Bluetooth.  b) What are ATT attributes used in BLE? Explain about Generic Attribute Profile (GATT) used in BLE.	3	(2.5+2.5=5)

Q5	<p>a) What is the difference between an Adhoc network and an Infrastructure Network. Give an example of each type.</p> <p>b) What is hidden station and exposed station problem in Adhoc and Infrastructure based IoT networks. How this problem is solved?</p>	3	(2.5+2.5=5)