JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -III EXAMINATION- 2024

B.Tech-VIII Semester (ECE)

COURSE CODE(CREDITS):18B1WEC843 (3) MAX. MARKS: 35

COURSE NAME: INDUSTRIAL IoT

COURSE INSTRUCTORS: Er. MUNISH SOOD MAX. TIME: 2 Hours

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

(b)Marks are indicated against each question in square brackets.

(c) The candidate is required to make suitable numeric assumptions wherever required for solving problems

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Q1) **[5] CO-4**

a) What is DASH7 ?

b) What is the band used for DASH 7?

c) What is the addressing scheme used in DASH7?

d) What are the different device classes defined in D7A (Dash7 Alliance Protocol)?

e) What are the frames used in DASH7?

Q2) **[5] CO-3**

a) What is Z-Wave used for?

b) What is the medium access technique used in Z-wave?

c) What is the architecture used in Z-wave?

d) What are the different transmission rates used in Z-wave?

e) What are the different device classes used in Z-wave?

Q3) **[5] CO-2**

a) Explain in detail about Zigbee smart energy.

b) What are the different IoT applications for which Zigbee is used ?

c) What are the different network topologies used in Zigbee?

d) What are the different stack profiles used in Zigbee?

e) What are the features of Zigbee smart energy?

Q4) **[2.5 X 2 = 5] CO-4**

a) Explain the working of Routing Protocol for Low-Power and Lossy Networks (RPL) with the help of control messages used in RPL?

b) What is cognitive RPL (CORPL)? What are the advantages of CORPL over RPL ?

Q5) Write short notes on the following **[2X5=10] CO-3**

a) Channel-Aware Routing Protocol (CARP)

b) IPv6 over Low power Wireless Personal Area Network (6LoWPAN)

c) IPv6 over Time Slotted Channel Hopping (6TiSCH)

d) IPv6 over Networks of Resource-constrained Nodes (6Lo)

e) Data Distribution Service (DDS)

Q6) **[5] CO-4**

a) Explain in detail about the session layer protocol, Message Queue Telemetry Transport (MQTT) used in IoT.

b) What is the Publish-Broker-Subscriber architecture used in MQTT?

c) Explain the major improvements in Secure MQTT (SMQTT) ?

d) What is the Constrained Application Protocol (CoAP) ? What are the four different messaging modes used in CoAP ?

e) What is the primary use of Extensible Messaging and Presence Protocol (XMPP)? What are the different architectures supported by XMPP ?