PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022
(Sixth Semester)

Branch – COMPUTER SCIENCE WITH DATA ANALYTICS

DISCIPLINE SPECIFIC ELECTIVE-II : INTERNET OF THINGS

Time: Three Hours   Maximum: 75 Marks

SECTION-A (10 Marks)
Answer ALL questions
ALL questions carry EQUAL marks   (10 x 1 = 10)

1. _____ is the term associated with both the driver and driverless cars fully integrating with the surrounding transportation infrastructure.
   - (i) Connected roadways
   - (ii) Connected factory
   - (iii) Connected buildings
   - (iv) All the above

2. Which one processes the data collected by smart objects and combines it to provide an intelligent view related to the IoT system?
   - (i) Network analytics
   - (ii) Business analytics
   - (iii) Application analytics
   - (iv) Data analytics

3. An _____ defines how metrics are used to select routes and establish a node's rank.
   - (i) objective rank
   - (ii) objective function
   - (iii) Iterative Function
   - (iv) All the Above

4. DHCP stands for _____.
   - (i) Domain Host Control Protocol
   - (ii) Distributed Host Control Protocol
   - (iii) Dynamic Host Control Protocol
   - (iv) Datagram Host Control Protocol

5. _____ is a distributed publisher-subscriber messaging system that is built to be scalable and fast.
   - (i) Lambda
   - (ii) Modbus
   - (iii) Apache Kafka
   - (iv) Apache Flink

6. Which one refers to how quickly data is being collected and analysed?
   - (i) Velocity
   - (ii) Volume
   - (iii) Variety
   - (iv) Verification

7. Which is not a message type that are initially defined by IEC protocol?
   - (i) MMS
   - (ii) GOOSE
   - (iii) SV
   - (iv) OPC

8. _____ is a technical standard for risk definition from the Open Group.
   - (i) OCTAVE
   - (ii) ICCP
   - (iii) YARN
   - (iv) FAIR

9. _____ is a well-known metric that indicates manufacturing productivity.
   - (i) OEE
   - (ii) PLC
   - (iii) OEM
   - (iv) OLM

10. The _____ combines the dual roles of energy producer and consumer and encompasses external elements that might impact the grid.
    - (i) Prosumer tier
    - (ii) Distribution tier
    - (iii) Substation tier
    - (iv) System control tier

SECTION - B (25 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 5 = 25)

11 a   Discuss about the Evolutionary Phases of the Internet with neat sketch.

OR

   b   Bring out the various characteristic of fog computing.

12 a   State the frame format for the 802.15.4 physical layer.

OR

   b   Explain why optimization is necessary for IP.

13 a   Describe the overview of IoT data analytics.

OR

   b   Write notes on Hadoop.

14 a   Narrate in brief about the history of IoT Security.

OR

   b   Outline the Security priorities and focus.

15 a   Illustrates how the generation, transmission and distribution work together to bring power to end customers.

OR

   b   List out the various benefits of GridBlocks reference architecture.

SECTION -C (40 Marks)
Answer ALL questions
ALL questions carry EQUAL Marks   (5 x 8 = 40)

16 a   Elaborate the architecture of one M2M IoT standard with neat diagram.

OR

   b   Narrate the different types of Sensors with its description.

17 a   Elucidate the Physical and MAC layers with neat sketch.

OR

   b   Describe in detail the supervisory control and data acquisition (SCADA) protocol.

18 a   Explain the Big Data Analytics Tools and Technology with diagram.

OR

   b   Discuss in detail the Edge Analytics Core Functions.

19 a   Explain the following.
     (i) Distributed Network Protocol (DNP3)   (4)
     (ii) Inter-Control Center Communications Protocol (ICCP)   (4)

OR

   b   Illustrate the Operationally Critical Threat, Asset and Vulnerability Evaluation (OCTAVE) risk assessment framework.

20 a   Describe in detail the Industrial Automation and Control Systems Reference Model.

OR

   b   Elaborate the Street Lighting Architecture.

Z-Z-Z   END