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8E1810

Roll No. _____ Total No. of Pages: 3

8E1810

B. Tech. VIII - Sem. (Main/Back) Exam., June - 2023

Information Technology

8IT4-01 Internet of Things

Time: 3 Hours **Maximum Marks: 120**

Min. Passing Marks: 42

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and four questions out of five from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 Define the IoT. How its characteristics are different from wireless sensor Network?

Q.2 Name any four services offered by Raspberry Pi.

Q.3 How LiteOS is useful to design IoT applications?

Q.4 What are the resources in Iot? Give the procedure to identify the resources in IoT Network.

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Q.5 What are the components of Representational State Transfer (REST) architectural style?

Q.6 What are the differences between IoT and M2M communication?

Q.7 List the requirements of NFV Framework.

Q.8 Can the IoT replaces the need for human intelligence? Justify your answer.

Q.9 Why traditional security methods are poor fit in IoT?

Q.10 What are the development challenges in IoT applications?

PART – B

[5×8=40]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 What distinguishes the Physical design of the Internet of Things from its Logical counterpart? Explain.

Q.2 List the installation steps of following types of IoT operating system -

(i) Raspberry Pi OS (ii) Contiki OS

Q.3 Explain the various security challenges of IoT Networks.

Q.4 What is the role of Control Plane in SDN? Explain in details.

Q.5 What are the applications of Network Functions Virtualization? How it helps to reduce the cost in designing the IoT network?

Q.6 Implement the analytics component for the smart forest fire detection system.

Q.7 What are the considerations for selecting best communication technologies when designing an IoT application?

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PART – C

[4×15=60]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any four questions

Q.1 How IoT reference model is different from traditional model of computer network? Explain in detail.

Q.2 What are the IoT enabling technologies? Explain in detail.

Q.3 Describe the working of following sensor types.

(i) Humidity (ii) Temperature, and (iii) Ultrasonic

Q.4 Explain the IoT Levels and deployment templates in details.

Q.5 Traditionally, there hasn't been a good way to ensure that providers and patients inside a healthcare facility washed their hands properly in order to minimize the risk of spreading contagion. Design an IoT application for Hand hygiene monitoring system. This system should have list of devices, sensors, network layouts, possible inputs and outputs.

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8E1809

Roll No. _____ Total No. of Pages: 2

8E1809

B. Tech. VIII Sem. (Main/Back) Exam., June - 2023

Computer Science Engineering

8CS4-01 Big Data Analytics

Time: 3 Hours **Maximum Marks: 120**

Min. Passing Marks: 42

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and four questions out of five from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 What is HDFS?

Q.2 Write the difference between Job tracker and Task tracker.

Q.3 What is Driver code?

Q.4 Explain the Hadoop Map Reduce.

Q.5 What do you mean by Writable Collections?

Q.6 Define custom comparators.

Q.7 What is ABCs Pig Latin?

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Q.8 Explain scripting with Pig Latin.

Q.9 What is Hive clients?

Q.10 Define Hive data types. What are the key differences between Hive and Pig?

PART – B

[5×8=40]

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Define Big Data. Explain the challenges of Big Data and their features.

Q.2 Explain Weather dataset. Also write a mapper and a reducer code to find the number of occurrences of the word "data" in the file "file. Text."

Q.3 What is Writable Interface? Explain writable classes in detail.

Q.4 How can checking out the pig script interfaces?

Q.5 What is Hive? Explain creating and managing databases and tables.

Q.6 Explain the Hadoop core components with neat diagram.

Q.7 Describe Hadoop API for Map Reduce framework.

PART – C

[4×15=60]

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any four questions

Q.1 What is HDFS? Explain HDFS architecture with diagram.

Q.2 Explain mapper code in detail. Why is Map Reduce slower in processing data in comparison to other processing frameworks?

Q.3 Explain writable wrappers for java primitives. How can implementing a custom writable?

Q.4 What are the limitations of the Pig? Explain Evaluating local and Distributed modes of running Pig scripts.

Q.5 Write short notes on -

(a) Querying and Analyzing data

(b) Apache Hive

(c) Hive Data Manipulation Language
