7E1721

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7E1721

B.Tech. VII - Sem. (Main/Back) Examination, January - 2023
Computer Science And Engineering
7CS4-01 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** from **Part B** and **Four** questions out of **Five** from **Part C**.*

Schematic diagrams must be shown wherever necessary. Any data you feel missing 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)

PART - A

(Answer should be given upto 25 words only)

ALL questions are compulsory. **(10×2=20)**

1. Define the Internet of Things.
2. What is the use of communication APIs in IoT?
3. What is the difference between Wireless Sensor Network and IoT?
4. Compare the boards Arduino Uno and Raspberry Pi with respect to its support to speed, memory and storage.
5. How soil moisture sensor works? Give two applications of soil moisture sensor.
6. What is Uniform Resource Identifier?
7. List any four security challenges in IoT.
8. What are the differences between IoT and M2M communication?
9. What is Software Defined Network?
10. How IoT is useful in the smart cities?

PART - B

(Analytical/Problem solving questions)

Attempt any FIVE questions. **(5×8=40)**

1. Describe the types of various IoT enabled technologies.
2. Explain the two application layer protocols that are used in IoT networks.

3. Explain with a diagram the interfacing pins for input and output on Raspberry Pi board.
4. Design an IoT application using humidity sensor.
5. Describe what the API is. To better understand how Rest and Restful APIs function, please give an example that is both appropriate and comprehensible.
6. What are the features of Routing Protocol for Low Power and Lossy Networks (RPL)?
7. Design a smart fridge using IoT technologies.

PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any FOUR questions. **(4×15=60)**

1. What distinguishes the Physical design of the Internet of Things from its Logical counterpart? Explain.
2. Describe the basic components of IoT-A reference model.
3. What is semantic interoperability? Why do we need it?
4. Describe network functions virtualization.
5. Explain the various areas in the agriculture domain that IoT is making an impact.

7E1722

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7E1722

B.Tech. VII - Sem. (Main/Back) Examination, January - 2023
Open Elective - I
7CS6-60.1 : Quality Management/ISO 9000

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** from **Part B** and **Four** questions out of **Five** from **Part C**.*

Schematic diagrams must be shown wherever necessary. Any data you feel missing 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)

PART - A
(Answer should be given up to 25 words only)

All questions are compulsory **(10×2=20)**

1. What are the stages of Quality Management?
2. What are the types of Quality Management?
3. What is evolution of Quality?
4. Explain importance of Quality Management.
5. What is Six Sigma concept in Quality Management?
6. Which is better Six Sigma or TQM?
7. How is Quality Cost measured?
8. How do you ensure process quality?
9. What does product quality means?
10. Why is benchmarking important for Quality Management?

PART - B
(Analytical/Problem Solving questions)

Attempt any five questions **(5×8=40)**

1. Explain Deming, Juran and Crosby quality philosophy.
2. What is PARETO diagram? Explain with suitable example.
3. What is HISTOGRAM? Explain with suitable example.
4. Explain types of Benchmarking also discuss examples of 'times' used for benchmarking.

5. What is the difference between ISO 9001 and QS 9000?
6. Discuss 5 key principles of Six Sigma.
7. Explain Six Sigma process of Business transformation.

PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any Four questions **(4×15=60)**

1. The following data is given : **(15)**

Type of Animals	No. of Animals	Average domestic Animals	Standard deviation
Cows	5	12	2
Dogs	5	16	1
Cats	5	20	4

Calculate the ANOVA coefficient.

2. Describe various quality costs. Also state the difference between quality cost in service and manufacturing organizations. **(15)**
3. Explain the Concept, Framework and methodology of Quality Circle with the help of case study. **(15)**
4. Write short notes on following:
   a. Taguchi method of Quality control **(7.5)**
   b. Quality Audit. **(7.5)**
5. Write short notes on following :
   a. Product Reliability Analysis. **(7.5)**
   b. Quality Management Leadership. **(7.5)**

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7E1711

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7E1711

B.Tech. VII Sem. (Main / Back) Examination, January - 2023
Open Elective-I
7AG6-60.2 Environmental Engineering and Disaster Management

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 from Part B and four questions out of five from Part C .

Schematic diagrams must be shown wherever necessary. Any data you feel missing 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)

PART - A

(Answer should be given up to 25 words only)

ALL questions are compulsory. **(10×2=20)**

1. What do you mean by environment?
2. What are the characteristics of smoke?
3. What is sewage?
4. Enlist different types of pollutants.
5. Give the any four names of natural and man-made type of disaster.
6. What is importance of safe water supply system?
7. What is importance of sanitation?
8. What is disaster?
9. Write down different types of solid waste.
10. What is importance of disaster management?

PART - B

(Analytical/Problem solving questions)

Attempt any FIVE questions. **(5×8=40)**

1. Describe different sources of water supply.
2. Describe physical characteristics of water.
3. What is air pollution? Explain harmful effects of air pollution on human being.
4. Describe the quality standards for drinking water as per Indian Standards.
5. Describe different types of sewer.
6. Explain different types of air pollutants with their properties.
7. Write a short note on disaster management cycle.

PART - C

(Descriptive/Analytical/Problem solving/Design Questions)

Attempt any FOUR questions. **(4×15=60)**

1. Explain domestic waste water treatment process.
2. Describe various techniques of waste processing and methods of disposal.
3. Describe the various techniques and methods for controlling air pollution.
4. Describe different types of disaster.
5. Describe the various classification of solid waste.

7E7032

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7E7032

B.Tech. VII Sem. (Back) Examination, January - 2023
Computer Sc. and Engineering
7CS2A Information System Security CS, IT

Time : 3 Hours **Maximum Marks : 80**

Min. Passing Marks : 26

Instructions to Candidates:

*Attempt any **five** questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing 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)

UNIT - I

1. Explain Data Encryption Standard (DES) Algorithm in detail. **(16)**

(OR)

1. Explain :

   a) Electronic code book **(8)**

   b) Cipher Feedback Mode. **(8)**

UNIT - II

2. a) Explain various S-BOX design Criteria? **(8)**

   b) Describe RC6 algorithm. **(8)**

(OR)

2. Explain AES algorithm in detail. **(16)**

UNIT - III

3. Explain RSA algorithm with suitable example. **(16)**

(OR)

3. a) Describe Diffie-Hallman key exchange algorithm. **(8)**

   b) Write a technical note on X.509. **(8)**

UNIT - IV

4. Elaborate MD5 message digest algorithm in detail. **(16)**

(OR)

4. a) Discuss digital signature in detail. **(8)**

   b) Explain how can we achieve authentication using hash function and MAC. **(8)**

UNIT - V

5. Explain Pretty good Privacy (PGP) in detail. **(16)**

(OR)

5. Write a technical note on:

   a) IP Security Architecture. **(8)**

   b) Encapsulation Security payload in Transport and Tunnel mode. **(8)**

7E7033

Roll No. _____ [Total No. of Pages : 2

7E7033

B.Tech. VII - Sem. (Back) Examination, January - 2023
Computer Science. and Engineering
7CS3A : Data Mining and Ware Housing
CS,IT

Time : 3 Hours **Maximum Marks : 80**
Min. Passing Marks : 26

Instructions to Candidates:

*Attempt any **Five questions**, selecting **one question** from **each unit**. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing 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)

UNIT - I

1. Explain shortly all data pre-processing approaches. **(16)**

(OR)

1. Explain the operation of data-cube with suitable examples. **(16)**

UNIT - II

2. Develop the Apriori Algorithm for generating frequent itemset. **(16)**

(OR)

2. Consider the following data-set 'D' shows 9 transactions and list of the items using Apriori Algorithm frequent itemset minimum support = 2. **(16)**

Tid	T_1	T_2	T_3	T_4	T_5	T_6	T_7	T_8	T_9
List of Items	I_1,I_2,I_5	I_2,I_4	I_2,I_3	I_1,I_2,I_4	I_1,I_3	I_2,I_3	I_1,I_3	I_1,I_2,I_3,I_5	I_1,I_2,I_3

UNIT - III

3. Explain cluster analysis method briefly. What are the features of cluster analysis **(16)**

(OR)

3. What is Bayes theorem. Show how it is used for classification? Write the algorithm for k-nearest neighbour classification. **(16)**

UNIT - IV

4. What is operational Data store? Explain ODS structure with a neat diagram. **(16)**

(OR)

4. What is ETL? Explain the steps in ETL and what are the guidelines for implementing the data Warehouse? **(16)**

UNIT - V

5. Explain characteristics of OLAP. Distinguish between OLTP and OLAP. **(16)**

(OR)

5. Explain ROLAP and MOLAP. Explain codd's OLAP rules. **(16)**

7E7035

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7E7035

B.Tech. VII - Sem. (Back) Examination, January - 2023
Computer Science. and Engineering
7CS5A : Compiler Construction

Time : 3 Hours **Maximum Marks : 80**

Min. Passing Marks : 26

Instructions to Candidates:

*Attempt any **five** questions, selecting **one** question from **each unit**. All questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing 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)

UNIT - I

1. a. Define compiler, Translator, Interpreter in detail. (4)

   b. Differentiate one pass with multipass compilers. (4)

   c. Explain Bootstrapping in detail. (8)

(OR)

1. a. Explain various phases of compiler in detail. (8)

   b. Explain Lexical Analyzer in detail. (8)

UNIT - II

2. a. Explain followings : (2×4=8)

   1. Bottom up parsing.
   2. Top down parsing.

   b. Explain followings : (2×4=8)

   1. Shift reduce parsing.
   2. Operator precedence parsing.

(OR)

2. a. Explain followings in detail : (2×4=8)

   1. LL parser
   2. LR Parser.

   b. Explain construction of SLR and LALR parsing tables with suitable examples. (8)

UNIT - III

3. Explain followings :
   1. Construction of syntax trees.
   2. L - attributed definitions.
   3. Top down translation.
   4. Specification of a type checker. **(4×4=16)**

(OR)

3. a. Explain followings : **(2×4=8)**
      1. Intermediate code forms.
      2. Boolean expression and control structures.

   b. Explain followings : **(2×4=8)**
      1. Representing TAC using triples and quadruples.
      2. Translation of assignment statement.

UNIT - IV

4. Explain followings : **(2×8=16)**
   1. Activation Records.
   2. Parameter parsing.

(OR)

4. Explain followings in detail :- **(2×8=16)**
   1. Symbol table organization.
   2. Storage allocation.

UNIT - V

5. Explain followings in detail :- **(2×8=16)**
   1. DAG representation of basic block.
   2. Loop optimization.

(OR)

5. Explain followings in detail :- **(2×8=16)**
   1. Peephole optimization.
   2. Code generation from DAG.

7E1724

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7E1724

B.Tech. VII - Sem. (Main/Back) Examination, January - 2023
Information Technology
7IT4-01 : 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** from **Part B** and **Four** questions out of **Five** from **Part C**.*

Schematic diagrams must be shown wherever necessary. Any data you feel missing 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)

PART - A

(Answer should be given up to 25 words only)

ALL questions are **compulsory.** **(10×2=20)**

1. What is Data Ingestion in Big Data?
2. What is the difference between "HDFS Block" and "Input Split"?
3. What are the different modes in which Hadoop run?
4. What is the scope of Big data in real world?
5. What are the real challenges of Big Data?
6. Explain the problems with traditional large - scale system.
7. Explain the Hive data in brief.
8. What is the use of JSP Command in Hadoop?
9. What is sequence file input format?
10. Explain Reducer code in detail.

PART - B

(Analytical/Problem solving questions)

Attempt any **Five** questions **(5×8=40)**

1. What are the three V's of Big data?
2. Explain the different steps to be followed to deploy a Big data solution.
3. Why is Hadoop used for Big Data Analytics? Define respective components of HDFS and YARN.
4. Explain the core components of Hadoop.
5. Explain the Pig architecture and its application flow.
6. Explain configuration of Hadoop cluster and XML files.
7. What are writable classes?

PART - C

(Descriptive/Analytical/Problem Solving/Design questions)

Attempt any **Four** questions. **(4×15=60)**

1. Discuss Hadoop API for Map Reducer framework in detail.
2. Explain Hive data manipulation and querying with same real world example.
3. How can we achieve security in Hadoop? Also explain the different configuration files in Hadoop.
4. Explain the different file permission in Hadoop distributed file system (HDFS) for file and directory levels.
5. Write short note on :
   a) Hadoop I/O
   b) Google file system

7E1711

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7E1711

B.Tech. VII Sem. (Main / Back) Examination, January - 2023

Open Elective-I

7AG6-60.2 Environmental Engineering and Disaster Management

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 from Part B and four questions out of five from Part C .

Schematic diagrams must be shown wherever necessary. Any data you feel missing 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)

PART - A

(Answer should be given up to 25 words only)

ALL questions are compulsory. **(10×2=20)**

1. What do you mean by environment?
2. What are the characteristics of smoke?
3. What is sewage?
4. Enlist different types of pollutants.
5. Give the any four names of natural and man-made type of disaster.
6. What is importance of safe water supply system?
7. What is importance of sanitation?
8. What is disaster?
9. Write down different types of solid waste.
10. What is importance of disaster management?

PART - B

(Analytical/Problem solving questions)

Attempt any FIVE questions. (5×8=40)

1. Describe different sources of water supply.
2. Describe physical characteristics of water.
3. What is air pollution? Explain harmful effects of air pollution on human being.
4. Describe the quality standards for drinking water as per Indian Standards.
5. Describe different types of sewer.
6. Explain different types of air pollutants with their properties.
7. Write a short note on disaster management cycle.

PART - C

(Descriptive/Analytical/Problem solving/Design Questions)

Attempt any FOUR questions. (4×15=60)

1. Explain domestic waste water treatment process.
2. Describe various techniques of waste processing and methods of disposal.
3. Describe the various techniques and methods for controlling air pollution.
4. Describe different types of disaster.
5. Describe the various classification of solid waste.

7E7052

Roll No. _____ [Total No. of Pages : 2

7E7052

B.Tech. VII - Sem. (Back) Examination, January - 2023
Information Technology
7IT4A : Internet Programming

Time : 3 Hours **Maximum Marks : 80**

Min. Passing Marks : 26

Instructions to Candidates:

*Attempt any **five** questions, selecting **one** question from **each unit**. All questions carry **equal** marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing 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)

UNIT - I

1. Write short note on : **(4×4=16)**
   i. Editing XHTML
   ii. W3C XHTML validation service
   iii. Headings linking
   iv. Special characters and horizontal rules

(OR)

1. a. Explain XHTML and also explain W3 XHTML validation services **(8)**
   b. Write down the list and tables used in XHTML. **(8)**

UNIT - II

2. a. What is CSS3? What are the needs of it? **(8)**
   b. Write down the following: **(2×4=8)**
      i. XML namespaces.
      ii. Events.

(OR)

2. a. Explain Java Script in brief. How function can be declared and defined in Java Script? **(8)**
   b. Explain Document Object Model (DOM) in details. **(8)**

UNIT - III

3. Write short note on (**any two**): **(2×8=16)**
   i. HTTP transactions
   ii. Ajax applications
   iii. Rich Internet Application (RIAs) with Ajax
   iv. Raw Ajax example using the XML Http Request object

(OR)

3. i. Explain Microsoft Internet Information Services (IIS). **(8)**
   ii. Explain the structure of the HTTP request message. **(8)**

UNIT - IV

4. Explain the following with examples. **(4×4=16)**
   i. Cookies in PHP
   ii. Session tracking in PHP
   iii. Operators used in PHP
   iv. PHP basics

(OR)

4. a. How to connect a database as a backend in ASP.NET? Explain all the steps. **(8)**
   b. What do you understand about PHP? And also explain the difference between cookies and session in PHP. **(8)**

UNIT - V

5. a. Write a Java program to reverse a number. **(8)**
   b. Write down about the following : **(2×4=8)**
      i. Java web technologies
      ii. Session tracking in Java web technology

(OR)

5. a. Write short notes on: **(2×4=8)**
      i. Net beans
      ii. Session tracking
   b. Explain JSF components in details with a suitable example. **(8)**

7E7053

Roll No. _____ [Total No. of Pages : 2

7E7053

B.Tech. VII - Sem. (Back) Examination, January - 2023
Information Technology
7IT5A : Computer Graphics and Multimedia Techniques

Time : 3 Hours

Maximum Marks : 80
Min. Passing Marks : 26

Instructions to Candidates:

*Attempt any **Five questions**, selecting **one question** from **each unit**. All Questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing 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)

UNIT - I

1. a) Explain the role of pixel and Frame buffer in graphic devices. **(8)**

   b) Describe the architecture of roaster scan display with clear block diagram. How is it different from scan display? **(8)**

(OR)

1. Differentiate between Calligraphic display device and Raster scan display device. Use suitable diagram/table to discuss, how frame buffer is used to control color of the pixel? **(16)**

UNIT - II

2. Derive the 2D-transformation matrix for reflection about the line y = mx, where m is a constant. Use this transformation matrix to reflect the triangle (ABC) about line y = 2x, where A. B. C are (0, 0), (1, 1) and (1, 0) respectively. **(16)**

(OR)

2. a) Write Bresenham's line generation algorithm? Compare the Bresenham's line generation algorithm with the DDA algorithm. **(8)**

   b) Derive 2D Rotation Matrix. Verify the statement, "Two successive rotations are additive in nature". **(8)**

UNIT - III

3. Define the Bezier curve and B-spline curve. Also differentiate with example. **(16)**

(OR)

3. Explain scan line polygon fill method, with suitable diagram to support your explanation. Compare the scan line polygon fill method with flood fill method. **(16)**

UNIT - IV

4. a) Define Ray tracing and Ray casting. **(8)**

   b) Define diffuse Reflection. **(8)**

(OR)

4. a) Define Specular Reflection. **(8)**

   b) Define phong shading. **(8)**

UNIT - V

5. How do 'Computer graphics' differ from "Animation"? Discuss the basic elements of Computer animation. **(16)**

(OR)

5. Write a short note on the following: **(16)**

   a) Multimedia components

   b) Animation Rules and Problems
