[5840]-301
M.Sc. (Computer Science)
CSUT - 231 : SOFTWARE ARCHITECTURE AND DESIGN PATTERNS
(Revised 2019 Pattern) (Semester - III) (CBCS) (Credit : 4)

Time : 3 Hours]   *[Max. Marks : 70*
Instructions to the candidates:
1) *Q. 1 is compulsory.*
2) *Solve any Five questions form Q.2 to Q.7.*
3) *Questions 2 to Questions 7 carry equal marks.*

Q1) Solve any <u>Five</u> of the following :   **[10]**

   a)   Define Software Architecture.

   b)   List any 2 structural things and draw it's notation.

   c)   Define pattern.

   d)   Draw structure of decorator pattern.

   e)   What is GRASP?

   f)   What is Inversion of Control?

Q2) Attempt All :

   a)   Describe a template of Design patterns.   **[7]**

   b)   List advantages and disadvantages of singleton design pattern.   **[5]**

Q3) Attempt All :

   a)   What is abstract factory design pattern? And write consequences of it in detail.   **[7]**

   b)   Write a short note on pipes and filters architecture style.   **[5]**

P.T.O.

Q4) Attempt All :

    a)   Discuss GRASP in detail.   **[7]**

    a)   Explain spring framework Architecture with suitable diagram.   **[5]**

Q5) Attempt All :

    a)   i)   Describe intent and applicability of adapter design pattern.   **[4]**

            ii)   List participants and structure of observer design pattern.   **[3]**

    b)   Write a short note on protected variations (PV).   **[5]**

Q6) Attempt All :

    a)   i)   Describe layered systems Architectured style with diagram.   **[5]**

            ii)   List three categories of GOF design pattern.   **[2]**

    b)   Why software architecture is important?   **[5]**

Q7) Write short notes on any two of the following :   **[12]**

    a)   Rational Unified Process.

    b)   Microservices with spring.

    c)   Law of Demeter (Don't talk to strangers)

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[5840]-302

Second Year M.Sc. (Computer Science)
CSUT 232 : MACHINE LEARNING
(2019 Pattern) (Revised) (Semester - III)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1)   Q. 1 is compulsory.

2)   Attempt any 5 questions from question 2 to 7.

Q1) **Solve any Five of the following :**   **[10]**

   a)   What are types of ANN?

   b)   What is reinforcement learning?

   c)   Explain the term support vectors.

   d)   Write an applications of Association Rule.

   e)   What is dendrogram?

   f)   What is Fl-score?

Q2) **Attempt All :**

   a)   Describe machine learning system cycle and design cycle in detail.   **[7]**

   b)   Write a short note on Support Vector Machine algorithm.   **[5]**

Q3) **Attempt All :**

   a)   What is machine learning? Explain various types of machine learning
        models.   **[7]**

   b)   Differentiate Supervised/Unsupervised Learning and Reinforcement
        Learning.   **[5]**

P.T.O.

Q4) Attempt All :

a) Discuss components and types of ANN in detail. **[7]**

b) Find the frequent itemsets with minsup = 2. **[5]**

TID	Items bought
T1	A,B,C
T2	B,C,D
T3	A,B,C,D
T4	A,E

Q5) Attempt All :

a) Write a short note on Decision tree algorithm. Give advantages and disadvantages. **[7]**

b) Explain the types of learners in classification. **[5]**

Q6) Attempt All :

a) What are the steps in handling missing data. **[7]**

b) Explain the concept of linear regression model. **[5]**

Q7) Write a short note on any Two of the following : **[12]**

a) Feature scaling.

b) Overfitting and Underfitting.

c) Naïve Bayes classifier.

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[5840] - 303

M.Sc. (Semester - III)
COMPUTER SCIENCE
CSUT - 233 : Web Frameworks
(2019 Pattern)

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to the candidates :
1) *Q.1 is compulsory.*
2) *Solve any Five questions from Q.2 to Q.7 of the following.*
3) *Q.2 to Q.7 carry equal marks.*
4) *Neat diagram must be drawn wherever necessary.*
5) *Figures to the right side indicates full marks.*

Q1) Solve any five of the following :   **[5 × 2 = 10]**
   a) What is DOM?
   b) What is event loop in Node.js?
   c) Explain Module. Exports.
   d) What is NPM?
   e) How to handle HTTP Requests in Node.js?
   f) Which method is used to remove a file from the fill system? Explain with suitable syntax.

Q2) Attempt all of the following :   **[12]**
   a) Which Web Framework is followed by Django? Explain with suitable diagram.   **[7]**
   b) What is REST? Explain functions used in REST.   **[5]**

Q3) Attempt all of the following :   **[12]**
   a) Explain Node.js Process Model.   **[7]**
   b) Create a Node.js file that demonstrate create database and table in MySQL.   **[5]**

P.T.O.

Q4) Attempt all of the following : **[12]**

    a)   What is Callback and Premises in JavaScript? Explain with suitable example. **[7]**

    b)   Using node.js create a web page to read two file names from user and append contents of first file into second file. **[5]**

Q5) Attempt all of the following : **[12]**

    a)   Which core files of Django Framework are used to develop any web application. Explain in detail. **[7]**

    b)   Create an HTML form that contain the student registration details and write a JavaScript to validate student first and last name as it should not contain other than alphabets and age should be between 18 to 50. **[5]**

Q6) Attempt all of the following : **[12]**

    a)   What is form? How forms are created in Django? **[7]**

    b)   Create a node.js file that Insert Multiple records in "Student" table and display the result object on console. **[5]**

Q7) Write short notes on any two of the following : **[12]**

    a)   Async / Await in JavaScript.

    b)   Event Emitter Class.

    c)   Mongoose ODM.

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[5840]-304
S.Y. M.Sc. (Computer Science)
CSDT - 234A : BIG DATA ANALYTICS
(2019 Pattern) (Semester - III)

Time : 2 Hours]   *[Max. Marks : 35*

Instructions to the candidates:
1) *Q. 1 is compulsory.*
2) *Solve any 3 question from Q. 2 to Q.5.*
3) *Question 2 to 5 carry equal marks.*

Q1) Solve any <u>Five</u> of the following :   [5]

    a)   What are the benefits of using Big Data?

    b)   Write any two characteristics of Database workload.

    c)   Define Master Data Management.

    d)   What is hadoop?

    e)   Explain real time analytics.

    f)   What is Pig?

Q2) Attempt the following :   [10]

    a)   i)   Explain 3v's of Big Data?   [2]

        ii)   Define characteristics of Big Data.   [4]

    b)   Write in details step to extract value from Big Data.   [4]

Q3) Attempt the following :   [10]

    a)   i)   What is MapReduce?   [2]

        ii)   Define HBase and Mahout.   [4]

    b)   Explain Hadoop Architecture in detail.   [4]

Q4) Attempt the follwoing : [10]

    a)   i)   Explain Hodoop Distributed file system. [2]

          ii)   Write in details application of Big Data. [4]

    b)   Explain Big Data Analytics Methodology. [4]

Q5) Attempt any Two of the following : [10]

    a)   What are the challenge in Big Data?

    b)   Write any five components of data ecosystem?

    c)   Explain in details - Data Integration Pattern.

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[5840]-305

M.Sc. (Computer Science)
CSDT - 234B : WEB ANALYTICS
(2019 Pattern) (Semester - III)

Time : 2 Hours]   *[Max. Marks : 35*

Instructions to the candidates:

1) *Q. 1 is compulsory.*
2) *Solve any Three question from Q. 2 to Q.5.*
3) *Question 2 to question 5 carry equal marks.*

Q1) Solve any <u>Five</u> of the following :   **[5]**

    a)   Define Web Analytics.

    b)   What is clickstream data?

    c)   Define A/B Testing.

    d)   What is conversion rate?

    e)   What is competitive Intelligence analysis?

    f)   What is Google Analytics.

Q2) Attempt the following :   **[10]**

    a)   i)   Explain Demographics.   **[2]**

           ii)   Explain Search Engine console report.   **[4]**

    b)   Write a note on following terms   **[4]**

           i)   Hybrid data   ii)   Search Engine Data.

Q3) Attempt the following :   **[10]**

    a)   i)   What is 4-Q Survey?   **[2]**

           ii)   What is survey? Explain Post visit surveys.   **[4]**

    b)   Write a note on dashboard & its implementation also explain various types of dashboards.   **[4]**

Q4) Attempt the following : **[10]**

    a)   i)   Explain web 2.0 challenge. **[2]**

          ii)   What do you mean by event tracking? What are the different elements in event tracking. **[4]**

    b)   What is segmentation? Explain types of segmentation. **[4]**

Q5) Attempt any Two of the following : **[10]**

    a)   Explain Goals & funnels in detail. **[5]**

    b)   What is website traffic Analysis. **[5]**

    c)   Write a note on conducting a Heuristic Evaluation. **[5]**

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