Model Question Paper
B.Sc 4th Semseter
Big data Acquisition and Analysis

Time: 3hrs

SECTION-A (5 X 5 = 25 Marks)
Answer any FIVE of the following

1. How a secondary name node differs from the name node in HDFS.
2. What are the methods for acquiring network data?
3. Write a PIG script for word count.
4. Write at least two differences between pig and hive.
5. What do you mean by HiveQL Data Definition Language?
6. Draw and explain Architecture of APACHE HIVE?
7. What are the limitations of HBase?
8. List the characteristics of Big Data.

SECTION-B (10 X 5 = 50 Marks)
Answer the following

9. a. Explain the basic building blocks of Hadoop with a neat sketch.
     OR
   b. Explain the various operational modes of Hadoop cluster configuration.

10. a. What is the differnce between Structured and unstructured data?
    b. Differnce between ETL vs ELT?
       OR
    b. Explain
       a. Wireshark
       b. Winnetcap
       c. Smartsniff

11. a. Discuss in brief about running a pig script in local and distributed mode.
       OR
    b. Discuss Pig Latin Application Flow.

12. Explain briefly about different Hive Data Types Explain in detail with example.
       OR
    b. How to Creating and Managing Databases and Tables in hive?

13. a. Differntiate between Hbase vs RDBMS.
       OR
    b. a. What are the applications of BigData.
       b. Exaplin data masking in detail?

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Model Question Paper
B.Sc 4th Semseter
DATA MINING AND DATA ANALYSIS

Max marks:75   Time:3hrs

SECTION-A (5 X 5 = 25 Marks)
Answer any FIVE of the following

1.How does KDD differ with data mining?Describe the stages of data mining.
2.Exalain the primitives of data mining query language?
3.what is Bayes theorem?Show how is it used for classification.
4.Discuss the methods for estimating predictive accuracy of classification method.
5.what is Rule-Bases classifier?Explain how a Rule-Based classifier works?
6.what are the features of cluster analysis?
7.Explain the cluster analysis methods briefly?
8.What are the objectives and Assumptions of Factor Analysis?

SECTION-B (10 X 5 = 50 Marks)
Answer the following

9.a.Discuss the tasks of data mining with suitable examples.
               OR
  b.Explain shortly any five data preprocessing approaches.

10.a.Explain in detail about Logistic Regression with an Example?
      OR
   b.What is Tree Pruning.Explain the Decision Tree construction Algorithm.

11.a.List some issues of multimedia mining.Describe how back propgation is used in clasification.
      OR
   b.Give any two types of association rules with example. Trace the results of using the Apriori algorithm on the grocery store example with support threshold 2 and confidence threshold 60 %. Show the candidate and frequent itemsets for each database scan. Enumerate all the final frequent itemsets. Also indicate the association rules that are generated.

        Transaction_ID   Items
        T1   HotDogs, Buns, Ketchup
        T2   HotDogs, Buns
        T3   HotDogs, Coke, Chips
        T4   Chips, Coke
        T5   Chips, Ketchup
        T6   HotDogs, Coke, Chips

12.What do you mean by representative object based clustering technique? Explain in detail with example.
      OR
   b.What is the purpose of cluster analysis in data mining? Explain.

13.a.What are the analysis of factor based data mining techniques.
      OR

Model Question Paper
B.Sc 4th Semester
Implementing IoT with Raspberry Pi

Max marks:75   Time:3hrs

SECTION-A (5 X 5 = 25 Marks)
Answer any FIVE of the following

1.What are the applications od Raspberry Pi?
2.What are the steps of implementation of IoT with Raspberrey pi?
3.What are the steps to install an operating System on a Raspberry Pi?
4.Write in brief about List in python.
5.What is the use of GPIO pins in a IoT device?
6.Explain IOT cloud-based services using the Xively(Pachube/COSM).
7.Explain the LAMP Web-server?
8.What is MQTT?Explain.

SECTION-B (10 X 5 = 50 Marks)
Answer the following

9.a.Mention the flavors of Linux OS supported by Raspberry pi device.
  b.Justify how Raspberry Pi is different from a desktop computer.
        OR
  a.Describe various features of a Raspberry Pi device.
  b.List out various versions of raspberry pi devices till date.

10. a.List the various frequently used commands during operation of Linux
OS.
     b.Write a short note on various raspberry pi interfaces used for data
transfer.
      OR
  a.What is a module in python? Explain with an example.
  b.Explain the characteristics of Python programming language
11.a.Design an automatic refrigerator light system with LED, switch &
raspberry pi
     and write a python program to support the working of that design.
     OR
  b.Discuss the role of communication protocols and embedded systems in
IoT.
12.a.Explain how cloud computing is playing key role in IoT.
   b.Describe an example of IoT service that uses Web socket-based
communication.
      OR
  a.Design a weather monitoring IoT system using REST based?
  b.Design a smart home automation system using IoT With mode REST
service.

13.a.Design a Home Automation using Raspberry Pi?Explain.
   OR
  b.What are the steps to install NODE-RED in Raspberry Pi?

Model Question Paper
B.Sc 4th Semester
Object Oriented Programming using Java

Max marks:75

Time:3hrs

SECTION-A (5 X 5 = 25 Marks)
Answer any FIVE of the following

1.Define OOP.Explain features of Object Oriented programming Language.
2.what are the characteristics of Java.
3.Explain different types of control statements used in java.
4.Define Abstract Class. Explain different types of Access controls available in java.
5.What is Polymorphism?Explain.
6.Define multithreading. Write a java program to show the inter-thread communication.
7.Write an Applet program that displays "Welcome to Andhra University".
8.Explain the JDBC Architecture with neat Sketch.

SECTION-B (10 X 5 = 50 Marks)
Answer the following

9.a.Describe the benefits and applications of object-oriented programming?
                    OR
  b.Differnce between OOP and Procedure Oriented Programming?

10.a.Define Abstract Class. Explain different types of Access controls available in java?
      OR
   b.What is the use of super keyword.Write a java Program uisng super keyword?

11.a.What are advantages of using Exception handling mechanism in a program?
   b.Write a java program that demonstrates how certain exception types are not allowed to be
     thrown?
     OR
   b.what is Type Casting.Write a java program for Type Casting?

12.a.a.What are the different ways that are possible to create multiple threaded
      programs in java? Discuss the differences between them.
   b.Write a program to create four threads using Runnable interface.?
     OR
   b.What is Serialization and De-Serialization.Exaplain in Detail?

13.Explain JDBC architecture with an example?
      OR
   b.Write an applet code to demonstrate parameter passing to applet?

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Model Question Paper
B.Sc 4th Semester
RFID and Wireless Sensor Networks

Max marks:75

Time:3hrs

SECTION-A (5 X 5 = 25 Marks)
Answer any FIVE of the following

1.What is RFID.What are the components of RFID system?
2.What are the different types of attacks on RFID system?
3.Waht are the Challenges and Constraints of WSN?
4.What are the Characteristic of MAC protocols in Sensor netwoks?
5.Explain the Zigbee Architecture in detail?
6.Discuss indetail how communication is eastablished between WSN and Intenet?
7.What are the features of RFID System?
8.Explain
    a.Frequency
    b.Range and Coupling
    c.Transponder.

SECTION-B (10 X 5 = 50 Marks)
Answer the following

9.a.With the help of block diagram explain the various elements of an RFID system?
        OR
  b.In the view of RFID explain the antennas and radio characteristics. Describe the band,
        frequency, wavelength and classical usage.

10.What are the advantages and disadvantages of using RFID technology for public and
        private sectors?
        OR
  b.Explain briefly understanding RFID's privacy threats and What are the Current state of RFID policy?

11.a.Discuss in brief the difference between Ad hoc networks and wireless sensor
        networks.
        OR
  b.Explain in detail the application of Wireless Sensor Networks.
12.a.What are the different Contention based protocols, write about CSMA Protocol.
        OR
  b.Explain the Various Routing Protocols in WSN?

13.a.What are the different Contention based protocols, write about CSMA Protocol.
        OR
  b.Explain the IEEE 802.15.4 architecture in detail?

Model Question Paper
BCA 4th Semester
Data Analytics using R

Max marks:75   Time:3hrs

SECTION-A (5 X 5 = 25 Marks)
Answer any FIVE of the following

1.List the differences between vector and list.
2.Write about vectors in R.
3.List some of R packages.Explain.
4.What are the applications of Data Analytics?
5.What is meant by Correlation Analysis?Explain.
6.Write the differences between histogram and bar graph.
7.What is anova test?Explain.
8.Define Correlation and Covariance?Explain.

SECTION-B (10 X 5 = 50 Marks)
Answer the following

9.a.What is a vector in R? Explain operations on vectors.
           OR
  b.Explain in detail about dataframe and arrays with example R code.

10.a.What is the use of packages in R.What are the R packages used in
Data Visualization?Explain.

     OR
  b.How is R used in data analytics?Explain.

11.a.Compute the correlation coefficient for the following data
       X 68 64 75 50 64 80 75 40 55 64
       y 62 58 68 45 81 60 68 48 58 70
                 OR
  b.Explain chi-Square Test with example?

12.a.Explain logistic regression?
     OR
  b.What are the diiferent types of Clustering Techniques.Expain?

13.a.What is Box plot? Explain importance of boxplot with example?
     OR
   b.Draw a pie chart for the following data
     Section I, II, III , IV, V
   No.of workers 220,370, 190, 70, 250

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Model Question Paper
BCA 4th Semester
Design of Object Oriented Applications

Max marks:75   Time:3hrs

SECTION-A (5 X 5 = 25 Marks)
Answer any FIVE of the following

1.What are the elements of Object model?
2.What are the benefits of Object Oriented Development?
3.What is an Inception Phase.Exapin with an Example?
4.What is an Elaboration Phase in Data Acquisition.Exaplain with an example?
5.What is Smalltalk?Explain.
6.What is Class Diagram with an Exmaple?
7.What are the Software Quality Metrics?
8.What are the features of Object Oeriented Programming Language?

SECTION-B (10 X 5 = 50 Marks)
Answer the following

9.a.What are the Phases of SDLC?
          OR
  b.Explain the level of abstaraction in micro process?

10.Explain about risk projection and risk management.
       OR
  b.Explain about risk projection and risk management

11.a.What are four Phases of Unified Process?
          OR
  b.Explain in detail about satellite-based navigation.

12.a.What are the Cryptanalysis Reqirements for Inception?Explain with an example>
          OR
  b.What are the requirements for Weather monitoring Station.Draw a
Deployement diagram for Weather monitoring System?

13.a.Differntiate between C and C++?
          OR
  b.Discuss about vacation tracking system.

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Model Question Paper
BCA 4th Semester
Data Mining and Data Warehousing

Max marks:75   Time:3hrs

SECTION-A (5 X 5 = 25 Marks)
Answer any FIVE of the following

1.What are the steps involved in KDD process.State why data preprocessing
is an important issue for
  data warehousing and data mining.
2.What is data Mining? Explain the differences between Knowledge
discovery and
  data mining.
3.What is data set? Describe different characteristics and types of data
sets used in
  data mining.
4.(a).What is a method used for classification that can be used even if
some of the
    variables are categorical?
  (b).What is the main idea of naïve Bayesian classification?
5.What is datapreprocessing?Explain in detail.
6.What are OLAP operations in the multidimensionaldata model?Explain.
7.Define KDD. Explain what are the Data Mining tasks.
8.How to build a decision tree?Explain.

SECTION-B (10 X 5 = 50 Marks)
Answer the following

9.a.What is data mining functionality? Explain different types of data
    mining functionality with examples.
                OR
  b.Explain the various data reduction techniques in the preprocessing
step of data mining?

10.a.Differentiate OLAP and OLTP.
     OR
   b.Explain how data mining system integrated with database/data
warehouse?

11.a.Discuss Apriori Algorithm with a suitable example and explain how
its efficiency
     can be improved?
     OR
   b.Write the algorithm to discover frequent item sets without candidate
generation
     and explain it with an example.
12.a.Explain different classification Techniques.
     OR
   b.Explain Baye"s theorem. Develop an algorithm for classification using
Bayesian
     classification.
13.a.Describe K means clustering with an example.
     OR
   b.(a) What are the requirements for cluster analysis? Explain briefly.
     (b) What is an outlier? Explain the types of outliers.

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Model Question Paper
BCA 4th Semester
Object Oriented Software Engineering

Max marks:75

Time:3hrs

SECTION-A (5 X 5 = 25 Marks)
Answer any FIVE of the following

1. What is an agile process? Explain.
2. Explain different levels of Capability Maturity model and list the KPA's of
   each level.
3. "Data Modeling can be viewed as a subset of OOA." Comment on this statement and
   justify your comments.
4. What is the goal of requirements analysis phase? Give reasons why the
   requirements analysis phase is a difficult one.
5. What is the need of software testing? What are its main objectives and
   principles?
6. Explain the factors that affect software quality.
7. List the major risks in a software project. What are the major ways to abate the risk of
   cost and schedule overruns?
8. Explain spiral model with its merits and demerits.

SECTION-B (10 X 5 = 50 Marks)
Answer the following

9. a. Explain software development life cycle. Discuss various activities during SDLC.

   OR

   b. Explain the following:
      a) Water fall model
      b) Spiral Model.

10. a. What are the Phase of unified Process?Explain.

    OR

    b. What do meant by Team Organization.Explain agile process in Team Organization?

11. a. What do you mean by the terms cohesion and coupling in the context of software
       engineering? How are these concepts useful in arriving at a good design of a system?

    OR

    b. What is Inheritence.What are the differnt types of Inheritence?

12. a. Who should be involved in a requirement review? Draw a process model showing how
       a requirements review might be organized.

    OR

    b. What are the challenges of the design workflow.

13. a. wWhat is black box testing? What is boundary value Analysis? Explain the technique
       specifying rules and its usage with the help of an example.

    OR

    b. Define maintenance. What are the types of software maintenance?Explain.

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Model Question Paper
BCA 4th Semester
Web Programming

Max marks:75

Time:3hrs

SECTION-A (5 X 5 = 25 Marks)
Answer any FIVE of the following

1.Explain with examples using of variables and constants in PHP.
2.Write a PHP script to open, close, read and write into a file.
3.What is PHP session, how session is created and destroyed.
4.How do we write java script with HTML programming?
   write HTML code and script to validate a text box for checking blank
entries.
5.What are directives? Name some of the most commonly used directives in
AngularJS application.
6.What are the benefits of AngularJS?
7.Write a PHP code to validate the form consisting of a username,
password and
   email fields.
8.Write a PHP script for uploading a file to the server and display the
uploaded
   files details.

SECTION-B (10 X 5 = 50 Marks)
Answer the following

9.a.Write a PHP script for accessing array elements.

          OR
  b.Explain with examples using of Data Types and Operators in PHP.

10.Write a PHP program to demonstrate invoking functions.
          OR
   b.Explain the predefined and user defined functions in PHP with an
example.

11.a.Write a PHP program for Working with Cookies?
      OR
   b.Discuss the integration of PHP with HTML?
12.Javascript is referred to as Object based programming language'.
Justify with
   an example.
      OR
   b.Write a JAVA Script for Phone number validation.

13.a.What are the key features of AngularJS?
      OR
   b.How can you integrate AngularJS with HTML?

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Model Question Paper
B.Sc 4th Semester
Operating Systems

Max marks:75

Time:3hrs

SECTION-A (5 X 5 = 25 Marks)
Answer any FIVE of the following

1. Explain various advantages and disadvantages of an operating system?
2. Discuss the concept of states of process.
3. What is meant vy CPU scheduling? Explain differnet scheduling algorithms with examples.
4. How deadlock situation is handled by an operating system?Explain.
5. Explain the concept of System call?
6. Explain differnce between internal and external fragmentation.
7. Define concept of File Operations. Give the process of directory structures and File management.
8. Discuss Resource-Request Algorithm with respect to deadlock?

SECTION-B (10 X 5 = 50 Marks)
Answer the following

9. a. Explain the need and various services provided an operating system?
   OR
   b. What are the differnt types of Operating Systems?Explain.

10. a. Consider the following set of processes with the length of CPU burst time give in milliseconds:

Process	Burst Time	Priority
P1	10	3
P2	29	1
P3	3	3
P4	7	4
P5	12	2

The processes are assumed to have arrived in the order P1, P2, P3, P4,P5 all at time 0.
   (a) What is the turnaround time of each process for using FCFS, SJF, a non preemptive priority
        (a smaller priority number implies a higher priority) and RR (quantum=10) scheduling.
   (b) What is the waiting time of each process for each of the scheduling algorithm in part a.
   OR
   b. Expalain typical elements of inter process communication models?

11. a. What is deadlock?Explain how deadlock can be avoided and prevented?
    OR
    b. What is meant by critical section problem?How it is managed? Explain the roles of semaphores for process synchronization.

12. a. Explain paging and Segmentation?
    OR
    b. What is the concept of virtual memory? Discuss the benefits of virtual memory and use of thrashing?

13.a.what is meant by a file system?Discuss the various file methods in deatil?

OR

b.Differentiate record, file and directory?
   (a) What is indexed access?
   (b) What is purpose of system call?
   (c) How scheduler differ from dispatcher??

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