[5842]-101

M.Sc. (Computer Applications)
CA - CCTP - 1 : WEB TECHNOLOGY
(2019 Pattern) (Semester - I)

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

Instructions to the candidates:
   1)   Question 1 is compulsory.
   2)   Solve any five questions from Q2 to Q7.
   3)   Questions 2 to 7 carry equal marks.

Q1) Attempt any Five of the following.   **[10]**

   a)   What is CSS? State its positioning property.

   b)   What is website? Write its two features.

   c)   What is meant by a margin? Explain with example.

   d)   Explain any two string functions in Javascript.

   e)   Find the output (no syntax error.)

   ```php
   <?php
        $author = "Greek for Greeks";
        $author = str_replace ("e", "i" $author);
        echo "[am intern at $author,";
   ?>
   ```

   f)   What is XSLT?

Q2) Attempt all of the following: **[12]**

   a)   i)   Explain the concept of traversing array in PHP.   **[4]**

        ii) Explain date objects in Java Script.   **[3]**

   b)   Write a PHP script to display the elements along with key for an
        associative array.   **[5]**

Q3) Attempt the following: **[12]**

    a)   i)   Explain any two dialog boxes used in JavaScript. **[4]**

          ii)   Differentiated between ordered and unordered list. **[3]**

    b)   Explain in detail HTML Form controls. **[5]**

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

    a)   i)   Write a program in JavaScript to check if a given number is Armstrong or not. **[4]**

          ii)   Write a PHP script to display a multiplication table in tabular format. **[3]**

    b)   Explain Responsive website using boot strap. **[5]**

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

    a)   i)   Explain types of operator in PHP with example. **[4]**

          ii)   How XML is different from HTML. **[3]**

    b)   Explain Event Handling in Javascript with example. **[5]**

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

    a)   i)   Explain CSS3 Gradient and multicolumn properties. **[4]**

          ii)   Explain anonymous function in PHP. **[3]**

    b)   Write notes on PHP Framework. **[5]**

Q7) Write short notes on any <u>two</u> of the following. **[12]**

    a)   Static and dynamic websites.

    b)   Image Mapping in HTML.

    c)   DOM in JavaScript.

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[5842]-102
M.Sc.
COMPUTER APPLICATIONS
CA - CCTP - 2 : Advanced Databases
(2019 Pattern) (Semester - I)

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

Instructions to the candidates:
1) *Question 1 is compulsory.*
2) *Solve any five questions from Q2 to Q7.*
3) *Questions 2 to 7 carry equal marks.*

Q1) Solve any Five Questions.   **[10]**

    a)   What is Normalization?

    b)   Write the steps in Query processing.

    c)   Define blind writes.

    d)   Define lock.

    e)   Enlist the types of failure classifications.

    f)   What are the types of distributed databases?

Q2) Attempt the following:

    a)   What is pipelining? Explain its types with example.   **[7]**

    b)   Suppose relation schema R = {A, B, C, G, H, I} and set of FDs ie
        $F = \{A \rightarrow B, A \rightarrow C, CG \rightarrow H, CG \rightarrow I, B \rightarrow H\}$ Find F^+ (ie closure of set of
        Functional Dependencies)   **[5]**

Q3) Attempt the following:

    a)   Explain Discretionary Access control.   **[7]**

    b)   What is cursor? Explain with example.   **[5]**

Q4) Attempt the following:

    a)   Explain shared memory Architecture of Parallel databases with diagram and its advantages and disadvantages. **[7]**

    b)   Explain transaction states with diagram. **[5]**

Q5) Attempt the following:

    a)   What are client side and server-side scripting in web? Explain with diagram and its benefits and drawbacks. **[7]**

    b)   Following are the log entries at the time of system crash.

        [start transaction T_1]

        [read item, T_1, D]

        [write item, T_1, D, B]

        [check point]

        [commit T_1]

        [start Transaction T_2]

        [reat item, T_2, B]

        [Write item T_2, B, 12]

        [start Transaction T_3]

        [write item T_3, A, 20]

        .... system crash .....

        If immediate update issued, what will be the recovery procedure. **[5]**

Q6) Attempt the following:

    a)   What is distributed databases? Explain different types of DBMS architecture. **[7]**

    b)   Differentiate between 4 NF and 5 NF. **[5]**

Q7) Write short notes on (Any two) **[12]**

    a)   Multiple Granularity

    b)   Shadow paging

    c)   Schedules

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M.Sc.

COMPUTER APPLICATIONS

CA - CCTP - 3 : DESIGN AND ANALYSIS OF ALGORITHM

(2019 Pattern) (Semester - I)

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

Instructions to the candidates:

1)   Question 1 is compulsory.

2)   Solve any five questions from Q2 to Q7.

3)   Questions 2 to 7 carry equal marks.

Q1) Solve any Five of following.   **[10]**

   a)   Write algorithm of tower of Hanoi.

   b)   Find optimal storage for 3 tapes.

        li = (4, 3, 5, 6, 2, 1, 8, 7, 9, 11, 10)

   c)   State relationship between P and NP.

   d)   What is brute - Force approach?

   e)   Write algorithm to Find GCD of 2 numbers.

   f)   Define LIFO, FIFO and LCBB.

Q2) Attempt the following: **[12]**

   a)   Write algorithm for heap sort, also apply it on 88, 39, 12, 5, 7, 1   **[7]**

   b)   Write difference between Linear equations & linear inequalities in brief. Also explain with appropriate example.   **[5]**

Q3) Attempt the following: **[12]**

   a)   Explain binary search technique. Also apply it on 3, 5, 6, 8, 11, 12, 13, 15, 16, 23, 24, 26, 29 search element 16.   **[7]**

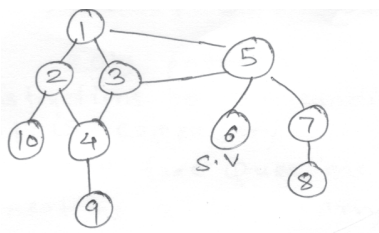b) Find minimum profit earned by arranging jobs in non-increasing order of profit.

P = (30, 60, 18, 6, 4, 2, 1)

d = (2, 4, 3, 1, 3, 1, 2)   [5]
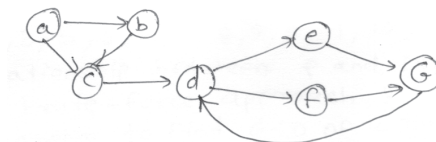
Q4) Attempt the following:

a) Explain matrix chain multiplication problem and also find optimal parenthesization of matrix chain product 5×10, 10×15, 15×25, 25×10. [7]

b) Draw DFS and BFS spanning tree for following graph.   [5]

Q5) Attempt the following: [12]

a) Find strongly connected components, cross component edges and also topological sorting order for graph.   [7]

b) What is mean by complexility explain both time & space complexity and also explain what is a symptotic notation?   [5]

Q6) Attempt the following: [12]

a) Draw state space tree for sum of subset problem using FTS & VTS both.   [7]

w = (5, 7, 5, 3) m = 10

b) Apply Quick sort on 17, 9, 22, 31, 7, 12, 10, 21, 13, 29, 18, 20, 11 pivot = 17.   [5]

Q7) Attempt any two of the following. [12]

    a) Calculate LCS and length of LCS. also perform string editing operations on following string X = kitten, Y = sitting

    b) Find 0/1 Knapsack instance using LIFOBB FTS.

    n = 4, m = 15, p = (10, 10, 12, 18), w = (2, 4, 6, 9).

    c) Find shortest path using, single source by Dijakstra's algorithm.
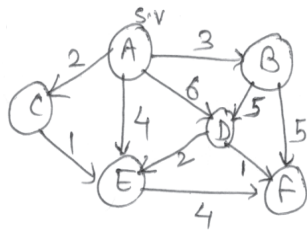
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[5842]-104
M.Sc. (Computer Application)
CA - CBOTP - 1 A : Object Oriented programming with C++
(2019 Pattern) (Semester - I)

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

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

Q1) Solve any 5 of the following: **[5]**
    a)   List the operators which can be overloaded with member function.
    b)   State different access specifier.
    c)   What are different modes of file?
    d)   What is pure virtual function? Give its syntax.
    e)   What is function overloading?
    f)   What does catch (...) mean?

Q2) Attempt the following.   **[10]**
    a)   i)   Write the syntax of overloading insertion and extraction operator.**[2]**
           ii)   Illustrate the use of 'this' pointer with the help of example.   **[4]**
    b)   Explain following function with an example.   **[4]**
           i)   tell g ( )
           ii)   tell p ( )

Q3) Attempt the following.   **[10]**
    a)   i)   What is destructor? Give its Syntax.   **[2]**
           ii)   Give any four characteristics of object oriented programming language.   **[4]**
    b)   Write C++ program to define class books having members title and price. Define member functions accept ( ) & display ( ). Create 5 objects of the class. Accept and display the information of books using array of object.   **[4]**

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

    a)   i)   State and rules to define default argument.   **[2]**

        ii)   Explain following functions:-   **[4]**

            i)   Width ( )

            ii)   Fill ( )

    b)   Write a program to overload binary operator '+' to add two complex number.   **[4]**

Q5) Attempt any two of the following   **[10]**

    a)   State and explain use of scope solution operator.   **[5]**

    b)   Write a C++ program with employee (e-no, ename) and project (p-no, pname) and derive new class emp-proj (duration-in-days). Define accept ( ) & display ( ) function in each class. Also store information of n emp-proj object & display it.   **[5]**

    c)   Trace the output of following code (Explain briefly).   **[5]**

```
class A
{
  Public
  A ( )
  {
  Cout<< "In object created";
  }
~ A ( )
 {
   Cout<< "In object Destroyed";
}
};
A a1;
main ( )
{ Aa2;
{
  A a3;
}
exit (o);
}
```

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[5842]-104

M.Sc. (Computer Application)
CA - CBOTP - 1B : ASP. NET
(2019 Pattern) (Semester - I)

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

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

Q1) Solve any five of the following: **[5]**

    a)   Write any two access Modifiers?

    b)   What is assembly?

    c)   Why we do type conversion?

    d)   What is CTS?

    e)   Write is the full form of MSJL.

    f)   What is CLR?

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

    a)   i)   What is postback event?   **[2]**

        ii)   How request & Response work in Non-ASP. NET Pages?   **[4]**

    b)   What is Access Modifiers? Explain its all types.   **[4]**

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

    a)   i)   List any two types of project that you create using microsoft.NET IDE.   **[2]**

        ii)   Write ASP.NET program to accept the detail of employee (eno, ename, emp-dept) & display it on next page.   **[4]**

    b)   Explain in detail Architecture of ASP.NET   **[4]**

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

    a)   i)   List the 2 event in the page life cycle.   **[2]**

        ii)   Write 5 differences between interface and Abstract class in.NET?**[4]**

    b)   Write a C# program to check entered No is prime or NOT.   **[4]**

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

    a)   Differentiate between class and object with its Example.   **[5]**

    b)   Explain session and cookies in detail.   **[5]**

    c)   What is Data Reader and Data adapter in ADO.NET.   **[5]**

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[5842]-104
M.Sc. (Computer Application)
CA - CBOTP - 1C : SOFTWARE TESTING (Manual Testing)
(2019 Pattern) (Semester - I)

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

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

Q1) Solve any five of the following: **[5]**

- a)   Define UAT. (User Acceptance testing)
- b)   What is boundry value analysis?
- c)   Who should prepare test plan in STLC?
- d)   Define Error.
- e)   What do you mean by smoke testing?
- f)   Write two types of software testing Names?

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

- a)   i)   What are the different types of testing matrices.   **[2]**
-      ii)   Describe in brief test planning activities.   **[4]**
- b)   Draw test case template.   **[4]**

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

- a)   i)   Advantages of unit testing. Describe   **[2]**
-      ii)   Explain SDLC model in detail.   **[4]**
- b)   Functional testing Vs Non functional testing differenciate it.   **[4]**

Q4) Attempt the following [10]

    a)   i)   Explain objective of software testing. [2]

         ii)   What is integration testing. Explain approaches towards integration testing. [4]

    b)   Give defination of defect management. Explain defect management process in detail. [4]

Q5) Attempt any two of the following. [10]

    a)   Explain in detail the software testing methods used in industries. [5]

    b)   What are the phases of STLC. [5]

    c)   Write note on roles and responsibilities of QA Team. [5]

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[5842]-201

M.Sc. (Computer Applications)

CA - CCTP - 4 : DATA MINING AND DATA WAREHOUSING

(2019 Pattern) (Semester - II)

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

Instructions to the candidates:

1) Question 1 is compulsory.

2) Solve any five questions from Q2 to Q7.

3) Questions 2 to 7 carry equal marks.

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

a)   Define summarization.

b)   Define data warehousing.

c)   What is Graph Mining?

d)   Define classification.

e)   Define precision.

f)   Define clustering.

Q2) Attempt the following: **[12]**

a)   i)   What is data preprocessing?   **[2]**

ii)   Explain any one data preprocessing technique in detail.   **[5]**

b)   What are various advantages and disadvantages of FP Tree algorithm?**[5]**

Q3) Attempt the following: **[12]**

a)   i)   What is Decision Tree?   **[2]**

ii)   Explain the major steps of decision tree construction.   **[5]**

b)   What do you understand by bootstrap?   **[5]**

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

   a)   i)   What is Bayes Theorem? **[2]**

       ii)   Consider the following dataset. **[5]**

Example No.	Color	Type	Origin	Stolen?
1	Red	Sports	Domestic	Yes
2	Red	Sports	Domestic	No
3	Red	Sports	Domestic	Yes
4	Yellow	Sports	Domestic	No
5	Yellow	Sports	Imported	Yes
6	Yellow	SUV	Imported	No
7	Yellow	SUV	Imported	Yes
8	Yellow	SUV	Domestic	No
9	Red	SUV	Imported	No
10	Red	Sports	Imported	Yes

Apply Naive Bayes classifier and classify the following tuple whether it belongs to class stolen or not

X = {Color = Red, Type = SUV, Origin = Domestic}

   b)   What are various applications of clustering? **[5]**

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

   a)   i)   What is OLAP? **[2]**

       ii)   Differentiate between OLAP and OLTP. **[5]**

   b)   Consider the following items **[5]**

{2, 4, 10, 12, 3, 20, 30, 11, 25}

Assume K = 2 (number of clusters)

Apply K - means algorithm to find out the two clusters.

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

    a)   i)   What is Apriori Property? **[2]**

           ii)   Consider the following set of transactions and generate candidate itemsets and frequent itemsets with minimum support count of 2. Apply Apriori algorithm to find out frequent itemset. **[5]**

TID	Items
1	{Bread, Milk}
2	{Bread, Diaper, Beer, Eggs}
3	{Milk, Diaper, Beer, Coke}
4	{Bread, Milk, Diaper, Beer}
5	{Bread, Milk, Diaper, Coke}

    b)   Explain Linear and non-Linear Regression. **[5]**

Q7) Write a short Note on any two of following. **[12]**

    a)   KDD process in data mining. **[6]**

    b)   SVM **[6]**

    c)   Expectation Maximization (EM) Algorithm. **[6]**

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M.Sc. (Computer Applications)
CA - CCTP - 5 : OPERATING SYSTEMS
(2019 Pattern) (Semester - II)

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

Instructions to the candidates:
1) *Question 1 is compulsory.*
2) *Solve any five questions from Q2 to Q7.*
3) *Questions 2 to 7 carry equal marks.*

Q1) Solve any five of the following: **[5×2=10]**

    a)   Explain command mode of vi editor.

    b)   What is use of 'test' command? Give example.

    c)   What is mean by orphan and zombie process?

    d)   Explain in short about 'type' command.

    e)   What is use of grep and egrep command?

    f)   What is system call? List out types of system call.

Q2) Attempt the following: **[12]**

    a)   i)   Explain following command with example: **[2]**

            passwd, echo, date

       ii)   Explain process states in detail.   **[5]**

    b)   Explain methods of changing file permission with example.   **[5]**

Q3) Attempt the following: **[12]**

    a)   i)   What is command? Explain types of command with example.   **[2]**

       ii)   Explain is command with option.   **[5]**

    b)   Explain architecture of Unix with diagram.   **[5]**

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

    a)   i)   Which are the three types of account in Unix system? Explain. **[2]**

            ii)   Describe different types of wild card character used for File name generation. **[5]**

    b)   Explain mechanism of process creation with example. **[5]**

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

    a)   i)   Explain structure of PCB with diagram. **[2]**

            ii)   Explain following command: **[5]**

                    cat, od, rm, mv

    b)   Write shell script to reverse the number and check whether it is pallindrome or not. **[5]**

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

    a)   i)   Explain with diagram : Shell interpretive cycle. **[2]**

            ii)   Explain 'man' command with option. **[5]**

    b)   Explain following command: **[5]**
            tail, head, cut, paste, set

Q7) Attempt any two of the following. **[2×6=12]**

    a)   Explain various ways of invoking and quitting vi editor.

    b)   Explain control structure in shell programming.

    c)   What is file? Explain different types of Unix file.

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[5842]-203

M.Sc.

COMPUTER APPLICATIONS
CA-CCTP-6: Computer Networks
(2019 Pattern) (Semester - II)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

1) Question 1 is compulsory.

2) Solve any Five questions from Q.2 to Q.7.

3) Questions 2 to 7 carry equal marks.

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

a) What is Latency?

b) What is DNS?

c) What is Asynchronous Transmission?

d) What is WDM?

e) What is demultiplexing in computer network?

f) What is web documents?

Q2) Attempt the following :

a) Explain different switching techniques in computer networks?   **[7]**

b) What is UDP protocol? Explain in detail.   **[5]**

Q3) Attempt the following :

a) Explain the various fields of TCP header with the help of a neat diagram. **[7]**

b) Explain hamming code with example. **[5]**

Q4) Attempt the following :

a) Explain ISO/OSI reference model with neat diagram. **[7]**

b) What are the design issues of network layer? Explain in detail. **[5]**

Q5) Attempt the following :

a) What are the different types of topologies? Explain any two topologies in detail. **[7]**

b) Explain different types of addressing in networking. **[5]**

Q6) Attempt the following :

a) What is FTP? Explain FTP architecture in detail with neat diagram? **[7]**

b) What is a Computer network? Explain different types of Computer networks. **[5]**

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

a) Service Primitives.

b) HTTP.

c) Random Access Protocols.

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[5842]-204

M.Sc. (Computer Applications)
CA-CBOTP-2A: Java Programming
(2019 Pattern) (Semester - II)

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

Instructions to the candidates:

1)   *Question 1 is compulsory.*

2)   *Solve any three questions from Q2 to Q5.*

3)   *Questions 2 to 5 carry equal marks.*

Q1)   Solve any Five of the following :   **[5]**

     a)   List any two Java buzz words.

     b)   What is an assertion?

     c)   Name the package which contains the Applet class?

     d)   What is the purpose of the Class.forName( ) method?

     e)   What is the use of finalize( ) method.

     f)   Write the syntax for creating a package.

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

     a)   i)   State two types of exceptions.   **[2]**

          ii)   Write a short note on the collections frameworks.   **[4]**

     b)   Write a Java program to create an applet which contains a list of courses. Display the selected course in a textbox.   **[4]**

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

  a) i)   List any four listeners.   **[2]**

      ii)   Explain the types of inheritance supported by Java.   **[4]**

  b) Define an abstract class shape and calculate the area of circle and rectangle.
      Write a Java program to accept the values from user.   **[4]**

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

  a) i)   What is scriptlet?   **[2]**

      ii)   Write a Java program to accept directory name and extension
            through command line argument and display names of all files in a
            directory having specific extension & Delete those files.   **[4]**

  b) Write a note on garbage collector in Java. How can it be invoked?   **[4]**

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

  a) Differentiate between DatabaseMetaData and ResultSetMetaData.   **[5]**

  b) What is a cookie? Explain how a cookie can be created and accessed in
      a servlet.   **[5]**

  c) Explain JSP Directives.   **[5]**

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M.Sc. (Computer Applications)
CA-CBOTP-2B: Web Services
(2019 Pattern) (Semester - II)

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

Instructions to the candidates:

   1)   *Question 1 is compulsory.*

   2)   *Solve any three questions from Q2 to Q5.*

   3)   *Questions 2 to 5 carry equal marks.*

Q1)   Solve any Five of the following :   **[5]**

   a)   State classic example of stateless property of Web service.

   b)   State any one feature of SOAP.

   c)   What is DII?

   d)   Give one example where SOAP is used.

   e)   State communication styles supported by SOAP.

   f)   State methods commonly used in REST architecture.

Q2)   Attempt the following :

   a)   i)   State WSDL key structural elements.   **[2]**

          ii)   What are various challenges of using Web Services?   **[4]**

   b)   Write disadvantages of SOAP.   **[4]**

Q3) Attempt the following :

    a) i)   State the role played by SOAP between two conversing end points.

                        [2]

      ii)   Explain core architectural elements of a Restful system.   **[4]**

    b) What do you mean by WSDL bindings?   **[4]**

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

    a) i)   State any two kind of operations supported for publishing API on UDDI.   **[2]**

      ii)   What is the procedure to send the call and get the response from the client to server using SOAP?   **[4]**

    b) How can we secure Restful Web Services?   **[4]**

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

    a) Explain RPC based communication model of Web Services.   **[5]**

    b) Explain SOAP Envelope element.   **[5]**

    c) What are data structures used in UDDI?   **[5]**

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M.Sc. (Computer Applications)
CA-CBOTP-2C: Software Testing (Automation)
(2019 Pattern) (Semester - II)

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

Instructions to the candidates:

    1)   *Question 1 is compulsory.*

    2)   *Solve any three questions from Q2 to Q5.*

    3)   *Questions 2 to 5 carry equal marks.*

Q1) Solve any Five of the following :   **[5]**

    a)   Mention what is the use of X-path?

    b)   What is Selenium web driver?

    c)   What is Selenese and what are the types of Selenese?

    d)   In which format does source view shows your script in Selenium IDE?

    e)   What is TestNG?

    f)   What is the difference between Page Object Model (POM) and Page Factory?

Q2) Attempt the following :

    a)   i)   List advantages of Selenium.   **[2]**

        ii)   What are the Selenium suite components?   **[4]**

    b)   What is Web Inspector? Explain in detail.   **[4]**

         P.T.O.

Q3) Attempt the following :

    a)   i)   What are the limitations of Selenium IDE? **[2]**

          ii)   Explain classification of Selenium commands. **[4]**

    b) How to handle Alert in Selenium Web Driver? Explain. **[4]**

Q4) Attempt the following :

    a)   i)   What is the difference between Selenium Web Driver and Selenium Grid? **[2]**

          ii)   What is TestNG Annotation? Mention list of TestNG Annotations.**[4]**

    b) How to set Test Case priority in TestNG with Selenium? **[4]**

Q5) Attempt any two of the following :

    a) List and explain different types of locators in automation testing. **[5]**

    b) Write a note on POM. **[5]**

    c) What is Maven Surefire plugin?. Why we need Maven with TestNG integration? **[5]**

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M.Sc.

COMPUTER APPLICATION

CA-CCTP-7: Mobile Application Development Using Android

(2019 Pattern) (Semester - III)

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

Instructions to the candidates:

1)   Question No. 1 is compulsory.

2)   Solve any Five questions from Q. 2 to Q. 7.

3)   Questions 2 to 7 carry equal marks.

4)   Draw diagram wherever necessary.

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

a)   What is android?

b)   What is accelerometer?

c)   Write disadvantages of Swift.

d)   What is worker thread?

e)   What is Manifest.xml file?

f)   Explain Xcode?

Q2) Attempt the following :

a)   Describe JSON parsing with example.   **[7]**

b)   Write short note on adapters and its type.   **[5]**

Q3) Attempt the following :

    a) Explain different type of view Groups with example. **[7]**

    b) Write an android program which send welcome message from one activity to another activity with help of button. **[5]**

Q4) Attempt the following :

    a) Explain Architecture of android with the help of diagram. **[7]**

    b) Write phone gap application for creating, searching and removing contacts. **[5]**

Q5) Attempt the following :

    a) What is Menu? Explain different types of Menu with example. **[7]**

    b) Explain content values and cursors with example. **[5]**

Q6) Attempt the following :

    a) Write an definition of Thread? Explain runOnVithread with example. **[7]**

    b) Write a swift program to calculate factorial of given number. **[5]**

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

    a) Pros and Cons of phone gap.

    b) Broadcast Receiver.

    c) Android Activity Life Cycle.

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S.Y. M.Sc. (Computer Applications)
CA-CCTP-8: Internet of Things (IoT)
(2019 Pattern) (Semester - III)

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

Instructions to the candidates:

   1)   Question 1 is compulsory.

   2)   Solve any Five questions from Q2 to Q7.

   3)   Questions 2 to 7 carry equal marks.

   4)   Draw neat labeled diagram wherever necessary.

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

   a)   State major components of IoT.

   b)   State short range communication protocols used in IoT.

   c)   State the techniques used for encrypting Arduino data.

   d)   State different cloud services.

   e)   State different sensors used in IoT.

   f)   What are the challenges faced by IoT devices?

Q2) Answer the following :

   a)   Differentiate between IoT & M2M.   **[5]**

   b)   List the mostly used IoT protocols and explain zigbee protocol in detail.
                                                                                  [7]

Q3) Answer the following :

a) Compare Arduino and Raspberrypi. **[5]**

b) Explain advantages and disadvantages of using cloud computing platforms. **[7]**

Q4) Answer the following :

a) Give two examples each of analog sensors and digital sensors. Explain working principle of any one of them. **[7]**

b) What are the security issues at different layers? Explain in brief. **[5]**

Q5) Answer the following :

a) Explain working of cloud base IBM IoT platform. **[7]**

b) Explain simple Ethernet client example using Arduino. **[5]**

Q6) Answer the following :

a) Describe in detail Smart parking system using IoT. **[5]**

b) Explain MQTT protocol in detail. **[7]**

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

a) Carriots IoT platform.

b) IoT based home automation system.

c) Bluetooth protocol in wireless communication.

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M.Sc.

COMPUTER APPLICATIONS

CA-CCTP-9: Artificial Intelligence

(2019 Pattern) (Semester - III)

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

Instructions to the candidates:

1)   *Question 1 is compulsory.*

2)   *Solve any Five questions from Q2 to Q7.*

3)   *Questions 2 to 7 carry equal marks.*

Q1)   Attempt the following :   **[10]**

a)   What are the advantages of using AI?

b)   What is heuristic search?

c)   What are the advantages of Depth First search?

d)   List the different methods of knowledge representation.

e)   What is a Script? Why scripts are beneficial?

f)   What is Mini-Max algorithm.

Q2)   Attempt the following :

a)   Describe Breadth First search with its advantages and disadvantages.**[7]**

b)   How predicate logic help in knowledge representation. Discuss.   **[5]**

Q3)   Attempt the following :

a)   What is learning? Explain the types of learning in detail.   **[7]**

b)   Give state space representation for "Block world problem".   **[5]**

Q4) Attempt the following :

a) Discuss the Bayesian network in detail. Write the semantics of Bayesian Network. **[7]**

b) Consider the following statements. **[5]**
   i) All Philosophers are Indian
   ii) All Indians are happy
   iii) Either Aryabhatta or C.V. Raman is a Philosopher
   iv) C.V. Raman is not a Philosopher
   Represent above information in wff and prove that Aryabhatta is happy.

Q5) Attempt the following :

a) Explain alpha-beta pruning with example. **[7]**

b) Explain the algorithm for resolution in propositional logic. **[5]**

Q6) Attempt the following :

a) Explain AO* algorithm. **[7]**

b) Write script for following **[5]**
   Restaurant

Q7) Attempt the following :

a) Explain the production system in detail. **[4]**

b) State the things required to be considered when we want to build an AI system that is used to solve a particular problem. **[4]**

c) Convert the following statements in conceptual dependency. **[4]**
   i) Vedika ate ice-cream with spoon.
   ii) Kritika sold her microwave to Mrinal.

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M.Sc. (Computer Application)
CA-CBOTP-3A: Python Programming
(2019 Pattern) (Semester - III)

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

Instructions to the candidates:

1) *Question 1 is compulsory.*
2) *Solve any three questions from Q2 to Q5.*
3) *Questions 2 to 5 carry equal marks.*

Q1) Solve any Five of the following :   **[5]**

a) What are Python numbers?

b) What is the use of lambda( ) with map( )?

c) What is indexing?

d) What do you mean by variable length arguments?

e) Define Binary file.

f) List the built-in class attributes in Python.

Q2) Attempt the following :

a) i) Explain in short the types of documentation strings.   **[2]**

   ii) Explain any two loop control statements with proper syntax and example.   **[4]**

b) Write a Python program to find length of a set, maximum and minimum value in a set.   **[4]**

Q3) Attempt the following :

   a) i)   State the use of join and split function. **[2]**

   ii)   Explain the two types of inheritance. **[4]**

   b)   What is exception in Python? Explain the except clause with no exceptions. Give example. **[4]**

Q4) Attempt the following :

   a) i)   Write a Python program to read the contents of a file in Reverse order. **[2]**

   ii)   What is List. State any four built-in list function with their use. **[4]**

   b)   What is recursion? Write a recursive function to find factorial of a number in Python. **[4]**

Q5) Attempt any two of the following :

   a)   Write a Python program which prints fibonacci series of a number. **[5]**

   b)   What is dictionary? Explain the ways to delete elements in dictionary with suitable example. **[5]**

   c)   What are iterators? Write a Python program to stop numbering after 20 iterations. **[5]**

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[5842]-304
M.Sc. (Computer Application)
CA-CBOTP-3B: Big Data
(2019 Pattern) (Semester - III)

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

Instructions to the candidates:

    1)   *Question 1 is compulsory.*

    2)   *Solve any three questions from Q2 to Q5.*

    3)   *Questions 2 to 5 carry equal marks.*

Q1) Solve any Five of the following :   **[5]**

    a)   What is Spark SQL?

    b)   Explain Mahout with example.

    c)   Define term: Big Data.

    d)   What is NOSQL use?

    e)   Elaborate ETL.

    f)   Define Hadoop.

Q2) Attempt the following :

    a)   i)   Explain any Four Bigdata platforms.   **[2]**

          ii)   Explain Mapreduce in detail.   **[4]**

    b)   Explain Big Data Workload Design Approaches.   **[4]**

Q3) Attempt the following :

     a)   i)   What is Machine Learning with Mlib.   **[2]**

          ii)   Explain any four applications of Big data.   **[4]**

     b)   Define following Terms :   **[4]**
          i)   Hive
          ii)   Pig
          iii)   Mahout
          iv)   HBase

Q4) Attempt the following :

     a)   i)   Explain any two characteristics of Big Data.   **[2]**

          ii)   Difference between SQL & NOSQL.   **[4]**

     b)   Explain Data Integration pattern in detail.   **[4]**

Q5) Attempt any two of the following :

     a)   Explain requirements of Big data Warehouse system.   **[5]**

     b)   Write down Case study for Netflix of Big Data Analytics.   **[5]**

     c)   Difference between RDBMS and Non-RDBMS.   **[5]**

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[5842]-304
M.Sc. (Computer Application)
CA-CBOTP-3C: Django
(2019 Pattern) (Semester - III)

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

Instructions to the candidates:

1) *Question 1 is compulsory.*
2) *Solve any three questions from Q2 to Q5.*
3) *Questions 2 to 5 carry equal marks.*

Q1) Solve any Five of the following : **[5]**

a) Write command to install Django on your system.

b) Explain use of path function used in urls.py file, with it's syntax.

c) What is the use of models.py file in Django?

d) What is the use of Django REST frame work?

e) Which function is used to render HTML page on browser.

f) What does the Django command 'manage.py shell' do?

Q2) Attempt the following :

a) i) How will you create and activate virtual environment for Django project. **[2]**

   ii) Explain Django Architecture. **[4]**

b) Explain form validation in Django. **[4]**

Q3) Attempt the following :

    a)   i)   Explain use of settings.py file in Django project.   **[2]**

         ii)   Explain steps to create Django project.   **[4]**

    b) What is Query set in Django? How it differs from SQL?   **[4]**

Q4) Attempt the following :

    a)   i)   What is the usage of Django admin.py and setting.py file?   **[2]**

         ii)   What is Django Admin interface/panel? How will you view it on browser?   **[4]**

    b) Explain Django's Request/Response cycle.   **[4]**

Q5) Attempt any two of the following :

    a) Write a note on Django REST API.   **[5]**

    b) Write a code to serialize Employee (id, name, address, age) data in serializer.py file.   **[5]**

    c) Explain Model serializer in Django REST framework.   **[5]**

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