Total No. of Questions : 7]

SEAT No. :

**PA-3432**

[Total No. of Pages : 2

# [5921] - 11
# M.Sc. (Computer Application)
# CA-CCTP-1 WEB TECHNOLOGY
# (2019 Pattern) (Semester-I)

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

***Instructions to the candidates:***

1) ***Q.1 is compulsory.***
2) ***Attempt/solve any Five questions from Q.2 to Q.7.***
3) ***Q.2 to Q.7 carry equal marks.***
4) ***Figures to the right indicates full marks.***

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

a) List any two client side and server side scripting languages.

b) What is type juggling in php?

c) Define Dom.

d) List the methods of passing parameters to a function in Php.

e) What is a Framework?

f) Name any two events associated with mouse in Javascript.

***Q2)*** Attempt the following.

a) What is Multidimensional Array in Php? Illustrate how to create multidimensional array for (Name,mobile no, email-id) of 3 students. **[7]**

b) Why to use php-framework? Discuss two examples of framework. **[5]**

***Q3)*** Attempt the following.

a) Define list in HTML. Explain different types of list along with different attributes. **[7]**

b) Discuss  and  tag in detail with example. **[5]**

***P.T.O.***

***Q4)*** Attempt the following.

a) Explain any five operators supported by Javascript. also explain operator Associativity **[7]**

b) Compare the variable function and Anonymous function in php. **[5]**

***Q5)*** Attempt the following.

a) What is the syntax of sort( ), rsort( ), ksort( ) and asort( ). Explain in detail how these functions are used to sort on array. **[7]**

b) Define CSS. Explain the use of external css with example. **[5]**

***Q6)*** Attempt the following.

a) Explain different features of XML with different areas of application. **[7]**

b) Differentiate between HTTP and FTP **[5]**

***Q7)*** write any two of the following: **[12]**

a) Explain in detail various data types supported by php. **[6]**

b) Write a javascript for concatenating two strings. **[6]**

c) Which are the attributes of <from> tag. Explain various elements of the form tag. **[6]**

Total No. of Questions : 7]

SEAT No. :

**PA-3433**

[Total No. of Pages : 2

**[5921]-12**

**M.Sc.**

**COMPUTER APPLICATION**

**CA-CCTP-2 : Advance 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 Q.2 to Q.7.***
3) ***Solve 2 to Q.7 carry equal marks.***

***Q1)*** Solve any five of the following. **[10]**

a) What is XML?

b) What are locks & name their types?

c) What is Query optimisation cost?

d) What do you mean by Granularity?

e) What is Trival and nontrival dependencies?

f) What is Database Recovery?

***Q2)*** a) What is Cursor? Describe implicit cursor with example? **[7]**

b) Explain properties of Transaction and its. Significance? **[5]**

***Q3)*** a) What is Normalisation. Explain 4NF & 5NF? **[7]**

b) Consider the transaction. Give two Non-Serial schedules that are serializable **[5]**

| $T_1$ | $T_2$ |
|---|---|
| Read (z) | Read (x) |
| Z=Z*10 | Read (z) |
| Write (z) | x=x+z |
| Read (y) | Write (x) |
| Read (z) | |
| y=y+z | |
| Write (y) | |

***P.T.O.***

***Q4)*** a) Describe Query optimisation? **[7]**

b) Explain Aries recovery Algorithm? **[5]**

***Q5)*** a) What is function? Write syntax to delete a function? **[7]**

Consider the following relationship.

Publisher (P-no, P-name, P-add)

Book(book-no, book-name, price, P-no)

Write a function which will return total no of books having price greater than 300.

b) Explain Timestamp based protocol. **[5]**

***Q6)*** a) What is serializability. Explain view and conflict serializability? **[7]**

b) Write an Algorithm for ranking web pages? **[5]**

***Q7)*** Any two of the following.

a) Explain challenges in database security? **[6]**

b) Explain two-phase lock protocol with example? **[6]**

c) Explain architecture for parallel database? **[6]**

**Total No. of Questions : 7]**

**SEAT No. :** ____

**PA-3434**

**[Total No. of Pages : 3**

**[5921]-13**

# M.Sc. (Computer Application)

## CA-CCTP-3 : DESIGN AND ANALYSIS OF ALGORITHM

## (2019 Pattern) (Semester-I)

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

***Instructions to the candidates:***

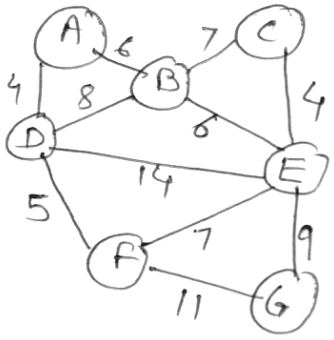
1) ***Question 1 is compulsory.***
2) ***Solve any five questions from Q2 to Q7.***
3) ***Questions 2 to 7 carry equal marks.***

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

a) Write difference between linear equations and linear inequalities.

b) Rank following functions in increasing order of growth rates. $n^2$, $n^4+2n$, $n^2-18n$, $n^3$.

c) Find minimum cost spanning tree for graph using kruskal's algorithm.




d) Apply binary merge pattern on 5, 12, 28, 32, 84, 53.

e) Explain problem of Job sequencing.

f) Write non- deterministic algorithm for max-clique problem.

***Q2)*** Attempt following. **[12]**

a) Write algorithm for binary search and also apply it on 3, 5, 6, 8, 11,12, 13, 15, 20, 23, 24, 26, 29 to search 16. **[7]**

b) Apply counting sort on 1,10, 2, 3, 4, 10, 5, 4, 9, 10. **[5]**

***P.T.O.***

***Q3)*** Attempt following. **[12]**

a) What is stable sorting in merge sort? Apply merge sort on list 85, 24, 63, 45, 17, 31, 96, 50, 40. Also give it's recurrence relation. **[7]**

b) Find optimal storage of elements for 3 tapes. **[5]**

$n$ = 13, li = (11, 4, 7, 31, 6, 4, 17, 25, 3, 2, 10, 9, 5)

fi = (6, 10, 5, 21, 4, 50, 24, 8, 9, 2, 3, 10, 2)

***Q4)*** Attempt following. **[12]**

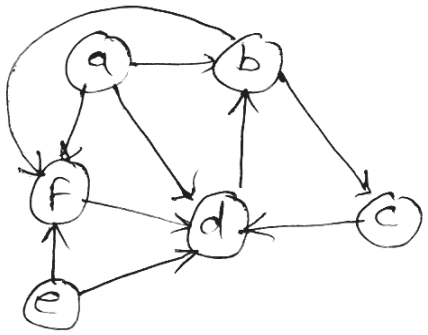
a) Explain matrix chain multiplication problem and using it multiply matrices in chain 10×5, 5×10, 10×20, 20×5 to find minimum cost. **[7]**

b) Find knapsack instance using LCBB FTS where, $n$ = 4, $m$ =15, $p$ ={10, 10, 12, 18}, $w$ = {2, 4, 6, 9}. **[5]**

***Q5)*** Attempt following. **[12]**

a) Write algorithm for insertion sort. Apply it on 5, 25, 9, 13, 4, 81, 2. **[7]**

b) Draw DFS spanning tree for graph with dfn numbering. Also explain different types of edges in short. **[5]**




***Q6)*** a) Solve following. **[12]**

i) Explain Queen's problem. **[2]**

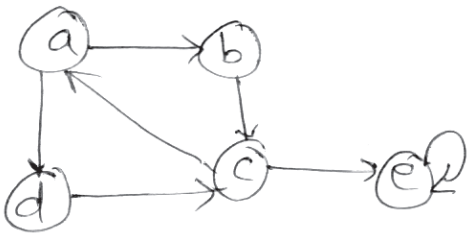
ii) Draw Dynamic state space tree for sum of subset problem. $w$ = (12, 15, 18, 5, 20), $m$ = 50. **[5]**

b) Multiply 2 matrices using strassen's matrix multiplication. **[5]**

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 2 \end{bmatrix}, \quad B = \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}$$

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

a) Write short note on strongly connected components & find strongly connected components & cross edges for graph.




b) Solve maximum profit earned for 0/1 knapsack using Dynamic programming (function & merge & purge both)

$p = (1, 2, 5)$, $w = (2, 3, 4)$, $m = 6$.

c) Obtain reduced cost matrix for TSP using LCBB

$$\begin{bmatrix} \infty & 12 & 10 & 11 \\ 11 & \infty & 9 & 8 \\ 2 & 5 & \infty & 6 \\ 10 & 12 & 3 & \infty \end{bmatrix}$$

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**Total No. of Questions : 5]**

**SEAT No. :** ____

**PA-3435**

**[Total No. of Pages : 7**

# [5921]-14

## M.Sc. (Computer Application)

## CA - CBOTP - 1A : 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 5 carry equal marks.***

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

a) A C++ program must have a main function. Justify True or False.

b) What is a constructor?

c) State any two types of Inheritance in C++.

d) Write the syntax of Pure virtual Function.

e) Which class can be used for both read/write C++ file I/o operations?

f) What is the use of throw statement in exception handling?

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

a) i) What is a friend class? Give its syntax. **[2]**

ii) What is the use of following four manipulator functions endl, setw, set fill and set precision. **[4]**

***P.T.O.***

b) What is inheritance? What ambiguity can arise in the following program. How to solve it? **[4]**

```
include <iostream·h>
using namespace std;
Class A
{
    Public :
    int a ;
} ;
Class B
{
    Public ;
        int a ;
};
Class C : public A, Public B
{
    Public ;
        int b ;
};
Void main ( )
{
    C obj ;
    obj·a = 10 ;
    obj·b = 20 ;
}
```

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

a) i) What is a parameterised constructor? **[2]**

ii) Explain the use of ifstream and ofstream classes in C++ and write a file handling program using ofstream class object to write the content in the file. **[4]**

b) Give the general format of a class and state the significance of private, public and protected access specifiers **[4]**

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

a) i) Find the output of the following **[2]**

```
Class base1
  {
    Public :
    base 1( )      {cout <<" This is class base1 \n" ;}
  } ;
Class base 2
  {
    Public :
    base 2( )      {cout <<" This is class base2 \n" ;}
  } ;
class derived : public base1, public base2
{
} ;
int main ( )
{
  derived obj ;
  return O ;
}
```

ii) State the rules of virtual function in C++. **[4]**

b) Explain the structure of a C++ program with example. **[4]**

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

a) Illustrate the concept of Array of objects with the help of example. **[5]**

b) What is a inline function? Mention advantages and disadvantages of it. **[5]**

c) Discuss the concept of operator overloading and state any four rules of it. **[5]**

**Total No. of Questions : 5]**

# PA-3435

## [5921]-14
## 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) What is MS.NET Name space?

b) What is Garbage collection?

c) What is C#?

d) What is Exception?

e) Define Data set?

f) What is session.

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

a) i) Explain common language Runtime. **[2]**

ii) What is function? Explain its types in detail? **[4]**

b) Write a C# program to check entered No. is even or odd. **[4]**

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

a) i) List any two validation control. **[2]**

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

b) Write a C# program to check amstrong number. **[4]**

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

a) i) Explain Implicit Type conversion. **[2]**

ii) Write a C# program to print Fibonacci series without using recursion. **[4]**

b) Write a ASP.NET program to accept the detail of student (SID, Sname, Sclass) & display it on next page. **[4]**

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

a) Explain in detail ASP.NET page life cycle. **[5]**

b) Explain server controls in detail? **[5]**

c) Explain Event Driven program in ASP.NET. **[5]**

**Total No. of Questions : 5]**

# PA-3435

## [5921]-14
## 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 5 carry equal marks.***

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

a) What is software testing?

b) Define defect.

c) Explain effort estimation in test plan.

d) Which are the types of parameter in testing. Enlist?

e) Define Test Plan.

f) What is defect report?

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

a) i) What do you mean by installation testing? **[2]**

ii) What are the stages of defect management cycle? **[4]**

b) Explain non functional testing with its types. **[4]**

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

a) i) Why test matrices are important in software testing? **[2]**

ii) Explain software testing and its various levels. **[4]**

b) Explain in brief UAT (user acceptance testing) plan and its execution. **[4]**

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

a) i) Generate test plan define agile model. **[2]**

ii) Generate test plan with example. **[4]**

b) Draw V-model and explain in brief. **[4]**

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

a) What is defect reporting in software testing. How to write it. What are mandatory fields in defect report. **[5]**

b) Explain STLC and its phases. What is the test planning in STLC. **[5]**

c) Describe in brief various popular testing types. **[5]**

**Total No. of Questions : 7]**

**SEAT No. :**

**PA-3436**

**[Total No. of Pages : 3**

**[5921]-21**

# 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) ***Q.1 is compulsory.***
2) ***Solve any 5 questions from Q.2. to Q.7.***
3) ***Question 2 to 7 carries equal marks.***

***Q1)*** Solve any five of the following. **[10]**

a) What is exclusive clustering?

b) What is Data mining?

c) Define an FP-tree.

d) Define an association rule.

e) Explain the following terms.

i) True positive

ii) False Negative.

f) Explain data cube.

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

a) i) What is the need of data warehousing? **[2]**

ii) Write a note on Architecture of data warehousing. **[5]**

b) What is Apriori Algorithm? How does it works? **[5]**

***P.T.O.***

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

a) i) Explain shannon's entropy. **[2]**

ii) Draw a decision tree for the following data. **[5]**

| Department | Status | Age | Salary | Count |
|---|---|---|---|---|
| Sales | Senior | 31-35 | 46k-50k | 30 |
| Sales | Junior | 26-30 | 26k-30k | 40 |
| Sales | Junior | 31-50 | 31k-35k | 40 |
| Systems | Junior | 21-25 | 46k-50k | 20 |
| Systems | Senior | 31-35 | 66k-70k | 5 |
| Systems | Junior | 26-30 | 46k-50k | 3 |
| Systems | Senior | 41-45 | 66k-70k | 3 |
| Marketing | Senior | 36-40 | 46k-50k | 10 |
| Marketing | Junior | 31-35 | 41k-45k | 4 |
| Secretary | Senior | 46-50 | 36k-40k | 4 |
| Secretary | Junior | 26-30 | 26k-30k | 6 |

b) Explain the confusion matrix with example. **[5]**

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

a) i) What are predictor and response variables. **[2]**

ii) The following table shows height and weight of animals. Predict weight of animal having height 8 feet. Using least square method. **[5]**

| Animal | height (feet) | Weight (lbs) |
|---|---|---|
| Animal1 | 9 | 300 |
| Animal 2 | 8.78 | 295 |
| Animal 3 | 9.6 | 312 |
| Animal 4 | 8.09 | 280 |
| Animal 5 | 5 | 200 |
| Animal 6 | 5.5 | 250 |
| Animal 7 | 5.42 | 230 |
| Animal 8 | 5.75 | 250 |

b) Explain correlation clustering in detail. **[5]**

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

a) i) What is Machine Learning? **[2]**

ii) Explain the operations of OLAP. **[5]**

b) Explain k-means algorithm. **[5]**

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

a) i) What are the applications of frequent Item set? **[2]**

ii) Construct on FP-tree for the following data (min support count = 3) **[5]**

| TID | Item |
|---|---|
| 1 | A,B,C |
| 2 | D,A,C,B |
| 3 | C,A,B |
| 4 | B,A,D |
| 5 | D |
| 6 | D,B |
| 7 | A,D,B |
| 8 | B,C |

b) Write a short note on perceptron. **[5]**

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

a) Describe the data mining applications. **[6]**

b) Explain Tree pruning methods. **[6]**

c) Explain Hierarchical clustering in detail. **[6]**

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**Total No. of Questions : 7]**

**SEAT No. :** [ ]

**PA-3437**

**[Total No. of Pages : 2**

**[5921]-22**

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

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

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

a) What is the purpose of is command?

b) What is command?

c) What are basic file types in UNIX?

d) What is parent and child process?

e) What are different types of shells in UNIX?

f) Explain test command in shell programming.

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

a) i) What is the meaning of dot and double dot notation in UNIX commands? **[2]**

ii) Explain following commands with syntax.

1) PWD

2) Cd

3) Mkdir

d) Rmdir

b) Explain file inode structure. **[5]**

***P.T.O.***

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

a) i) What are ex mode commands in UNIX? **[2]**

ii) What are various input mode commands in UNIX? **[5]**

b) Explain head and tail commands in shell programming. **[5]**

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

a) i) What do you mean by internal and external commands in UNIX? **[2]**

ii) Explain commands to add, modify and delete users with syntax. **[5]**

b) Write shell script to check whether accepted number is prime or not. **[5]**

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

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

ii) Explain architecture of UNIX operating system with diagram. **[5]**

b) Explain control structures in shell programming. **[5]**

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

a) i) What is PATH Variable? **[2]**

ii) What are various relative and absolute permissions changing methods of file? **[5]**

b) What do you mean by ordinary and environment variables in shell programming explain with example. **[5]**

***Q7)*** Attempt any two of the following: **[12]**

a) Explain various services provided by operating system to user. **[6]**

b) Explain PS command with its options. **[6]**

c) Explain pipe and grep command with example. **[6]**

**Total No. of Questions : 7]**

**SEAT No. :** ____

**PA-3438**

**[Total No. of Pages : 2**

**[5921]-23**

# M.Sc. (Computer Application)
# CA-CC TP-6 : COMPUTER NETWORKS
# (2019 Pattern) (Semester-II)

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

***Q1)*** Attempt the following (any five) **[10]**

a) Define protocol list key elements of protocol.

b) List any two functions of transport layer.

c) Define

i) Throughput

ii) Jitter

d) State advantages of sliding window protocol.

e) Define the term carrier sence in CSMA/CD.

f) State the services provided by network layer to transport layer.

***Q2)*** Attempt the following:

a) Describe OSI reference model in detail **[7]**

b) What are channelization protocols? Discuss its types **[5]**

***Q3)*** Attempt the following

a) List the application layer protocols. Discuss FTP in detail. **[7]**

b) Convert the following data stream in NRZ-L & MRZ-I 01001110 **[5]**

***P.T.O.***

***Q4)*** Attempt the following:

a) What is 1P address? What are its types? Differenciate between 1PV4 & 1PV6 **[7]**

b) List the error defecting techniques used by data link layer write a note on CRC with appropriate example. **[5]**

***Q5)*** Attempt the following:

a) What is UDP? Discuss its format with its disadvantages. **[7]**

b) What is SMTP? what are its components Discuss the working of SMTP. **[5]**

***Q6)*** Attempt the following:

a) What are routing algorithms? Compare adaptive and Non-adaptive routing algorithms. **[7]**

b) Solve the following problems. **[5]**

i) If there is a noiseless channel with a bandwidth of 4KHz that is transmitting a signal with 4 descrete levels what is the maximum bit rate?

ii) Calculate the maximum bit rate of a noisy channel if bandwidth is 4KHz and signal noise ratio is 100

***Q7)*** Attempt the following (any two) **[12]**

a) Discuss the service premitives in data communication. **[6]**

b) Write a note on network topologies. **[6]**

c) What is transmission impairments discuss its types. **[6]**

Total No. of Questions : 5]

SEAT No. :

**PA-3439**

[Total No. of Pages : 6

# [5921]-24
# 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 compuslory.***
2) ***Attempt any three questions from Q. No. 2 to Q. No. 5.***
3) ***Question No. 2 to 5 carry equal marks.***

***Q1)*** Solve Any five of the following. **[5]**

a) What are the components of Java Program?

b) Write syntax to declare user defined exception.

c) Which swing classes are used to create menu?

d) What is inner class?

e) What is prepared statement?

f) What is constructor?

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

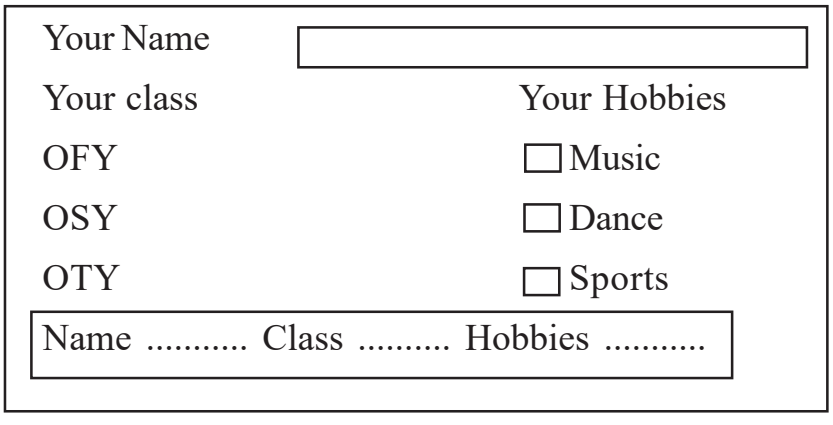
a) What are two basic stream types supported by Java? **[2]**

b) Explain the following terms:

i) Java Features

ii) Final class **[4]**

c) Create the following GUI screen using appropriate layout manager. Accept the name, class, hobbies from the user and display the selected options in a textbox. **[4]**




***P.T.O.***

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

a) State the advantages of Applet. **[2]**

b) Define

i) collection framework

ii) abstract class

iii) Servlet

iv) cookies

**[4]**

c) Define Exception. State purpose of try, catch and throw blocks. **[4]**

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

a) What is JSP? Why do we need it? **[2]**

b) Explain linked list with an example. **[4]**

c) What is wrapper class? List any four wrapper classes. **[4]**

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

a) Explain Life cycle of JSP with suitable diagram. **[5]**

b) Write a servlets program which counts how many times a user has visited a web page. If user is visiting the page first time, display welcome message. If the user is revisiting the page, display no of times viritied. (Use cookie). **[5]**

c) Explain purpose of **[5]**

i) execute update ( )

ii) callable statement

**Total No. of Questions : 5]**

# PA-3439

## [5921]-24
## 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 compuslory.***
2) ***Solve any three questions from Q. No. 2 to Q. No. 5.***
3) ***Question No. 2 to 5 carry equal marks.***

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

a) What is SOA?

b) State any one property of Web Service architecture?

c) What is UDDI?

d) What is purpose of SOAP?

e) What does SOAP body contains?

f) What is HTTP?

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

a) i) What are the three major components of Web Services? **[2]**

ii) Explain the Web Service Architecture. **[4]**

b) What is the structure of SOAP message? **[4]**

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

a) i) What is the purpose of header block of SOAP message? **[2]**

ii) What are RESTful Web Services? **[4]**

b) What are four kind of operations supported for publishing API? **[4]**

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

a) i) State any two sections of UDDI. **[2]**

ii) How errors are handled in SOAP. **[4]**

b) What are the best practices to be adhered to while designing a RESTful Web service? **[4]**

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

a) What are basic steps to be followed for implementation of Web services? **[5]**

b) Explain Building Web services. **[5]**

c) What are various limitations of UDDI? **[5]**

**Total No. of Questions : 5]**

# PA-3439

## [5921]-24
## 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 compuslory.***
2) ***Solve any three questions from Q. No. 2 to Q. No. 5.***
3) ***Question No. 2 to 5 carry equal marks.***

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

a) What is automation in software testing?

b) What is selenium in automation testing?

c) What is the purpose of maven surefire plugin?

d) Define Hub in selenium Grid.

e) Write basic format of Xpath in selenium.

f) Define POM in software testing.

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

a) i) What are Assertions in selenium? In which mode they are used? **[2]**

ii) Differentiate selenium and QTP. **[4]**

b) What are the limitations of selenium testing? **[4]**

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

a) i) How will you find an element using selenium. **[2]**

ii) What are the features of Testing and list some of the functionality in Testing which makes it more effective. **[4]**

b) How to verify page title in selenium webdriver. **[4]**

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

a) i) Explain how you can insert a breakpoint in selenium IDE? **[2]**

ii) What is difference between maxsession and maxinstance in selenium grid. Explain with example. **[4]**

b) What are Desired capabilitis in selenium Web driver? **[4]**

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

a) What is parallel Testing? Where can we apply parallel Test Execution in Testing.

b) What is the importance of groups in Testing.

c) What is Testing Listeners and how to implement testing listener in selenium Webdriver.

Total No. of Questions : 7]

SEAT No. :

**PA-3440**

[Total No. of Pages : 2

# [5921]-31

## S.Y. 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) ***Q. 1 is compulsory.***
2) ***Solve any Five questions from Q.2 to 7.***
3) ***Questions 2 to 7 carry equal marks.***
4) ***Draw diagram wherever necessary.***

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

a) List and Give example of any two Layouts.

b) Explain any 2 points dp Vs px.

c) Using Intent class we can dial number. True or false Justify It.

d) What is Toast? Give example.

e) List and explain any two methods of SQLite OpenHelper.

f) What is Swift? Write any two feature of IOS.

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

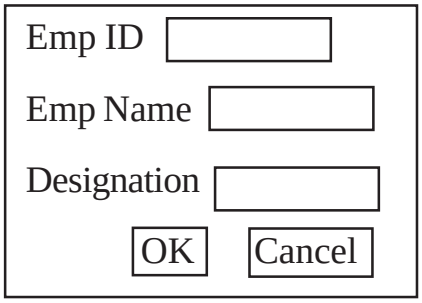
a) What is Menu? Explain different types of Menu. **[7]**

b) With the help of diagram explain Architecture of IOS. **[5]**

***P.T.O.***

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

a) Write an application for the following layout : **[7]**




After clicking Ok button store data into Database. (Using SQLite).

b) Differentiate between : Location based services and Google Map. **[5]**

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

a) Explain with help of diagram Application Life Cycle of IOS. **[7]**

b) What is Broadcast Receivers? Explain it with Example. **[5]**

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

a) What is phone Gap? Write an program to display Hellon world! Using Phone Gap. **[7]**

b) What is Worker Thread? Give an example of it. **[5]**

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

a) With the help of diagram Explain Life Cycle of Activity. **[7]**

b) What is Notification? How to display notification Give an example. **[5]**

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

a) Base Adapter

b) JSON Parsing

c) AsyncTask

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**Total No. of Questions : 7]**

**SEAT No. :**

**PA-3441**

**[Total No. of Pages : 2**

# [5921]-32
# M.Sc. (Computer Application)
# CA-CCTP-8 : Internet Of Things (IOT)
# (2019 Pattern) (Semester - III)

***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.***
3) ***Questions 2 to 7 carry equal marks.***
4) ***Draw diagrams wherever necessary.***

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

a) Note on wireless communication bluetooth.

b) What is micro controller?

c) What is Saas?

d) Define Lux and give an example.

e) What is carriots?

f) Explain types of cloud services.

***Q2)*** **Attempt the following** :

a) Explain architecture of IOT with the help of diagram. **[7]**

b) What is authenticating and Encrypting Arduino Data. **[5]**

***Q3)*** **Attempt the following** :

a) With the help of diagram explain major components of IOT. **[7]**

b) What is Zigbee? Explain types of layered protocols. **[5]**

***P.T.O.***

***Q4)*** **Attempt the following** :

a) Explain cloud based architecture with the help of diagram. **[7]**

b) Differentiate between Analog and Digital sensors. **[5]**

***Q5)*** **Attempt the following** :

a) What is sensor? Explain different types of sensors. **[7]**

b) Explain with example any two IOT protocals. **[5]**

***Q6)*** **Attempt the following** :

a) Explain working principles of sensors with help of diagram. **[7]**

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

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

a) Ethernet TCP/IP.

b) Application of IOT.

c) Rasberry PI

**Total No. of Questions : 7]**

**SEAT No. :** ____

**PA-3442**

**[Total No. of Pages : 2**

# [5921]-33

# M.Sc. (Computer Applications)

# CA-CCTP - 9 : ARTIFICIAL INTELLIGENCE

## (2019 Pattern) (Semester - III)

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

***Q1)*** **Attempt any five of the following :** **[10]**

a) List the advantages of AI.

b) Define search strategy.

c) List the disadvantages of Breadth First Search.

d) What are the different types of knowledge?

e) What are the components of a script?

f) What are the limitations of Mini-Max algorithm?

***Q2)*** **Attempt the following :**

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

b) What is Resolution? Explain the algorithm for Resolution for propositional logic. **[5]**

***Q3)*** **Attempt the following :**

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

b) Give the state space representation for “Water Jug Problem”. **[5]**

***P.T.O.***

***Q4)*** **Attempt the following :**

a) Discuss the Dempster-Shafer theory in detail. **[7]**

b) Consider the following axioms. **[5]**

i) Anyone whom Mary loves is a foot ball star.

ii) Any student who does not pass does not play.

iii) John is a student.

iv) Any student who doesnot study does not pass.

v) Anyone who does not play is not a foot ball star. (Conclusion) If John does not study, then Mary does not love John.

Represent these axioms in predicate calculus; skolemize as necessary and convert each formula to clause form. Prove the unsatisfiability of the set of Clauses by resolution.

***Q5)*** **Attempt the following :**

a) What is alpha-beta pruning? Explain with appropriate example. **[7]**

b) Translate the following statements in FOPL. **[5]**

i) All students are smart.

ii) There exists a student.

iii) There exists a smart student.

iv) Every student loves some student.

v) Every student loves some other student.

***Q6)*** **Attempt the following :**

a) Explain A* algorithm with example. **[7]**

b) Represent following statement using semantic net **[5]**

i) Every girl likes ice-cream.

ii) I own black colour car.

***Q7)*** **Attempt the following :**

a) State 4 components using which problem can be well-formulated. **[4]**

b) A good control strategy is that it causes motion and should be systematic. State true or false and justify the answer. **[4]**

c) Write a note on conceptual dependency. **[4]**

**Total No. of Questions : 5]**

**SEAT No. :**

**PA-3443**

**[Total No. of Pages : 2**

# [5921]-34

## M.Sc.

## COMPUTER APPLICATIONS

## 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 form Q.2 to Q.5.***
3) ***Question 2 to Question 5 carry equal marks.***

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

a) Python is powerful dynamically typed language. Comment.

b) Write special operators in Python?

c) What is mean by immutable data type?

d) What is lambda in Python?

e) What is the difference between list & type?

f) What is the use of document strings?

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

a) i) List any 4 keywords in Python. **[2]**

ii) Explain function in Python with suitable example. **[4]**

b) Write a program to print factorial of a given number. **[4]**

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

a) i) Explain list comprehension with suitable example **[2]**

ii) Explain operator overloading of operators in Python with suitable example. **[4]**

b) Write a program that accepts a sentence and calculate the number of uppercase letters and lowercase letters in the sentence. **[4]**

***P.T.O.***

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

a) i) Differentiate between List & Dictionary. **[2]**

ii) Explain any four built - in class attributes in Python. **[4]**

b) Explain assertion in Python with suitable example. **[4]**

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

a) Explain features of Python programming. **[5]**

b) Write functional programming tools in Python with example. **[5]**

c) Explain types of formal arguments in functions of Python. **[5]**

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**Total No. of Questions : 5]**

**SEAT No. :**

**PA-3444**

**[Total No. of Pages : 2**

# [5921]-35

## M.Sc.

## COMPUTER APPLICATIONS

## 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 form Q.2 to Q.5.***
3) ***Question 2 to Question 5 carry equal marks.***

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

a) Define Big data Warehouse.

b) List any two applications of Big data.

c) What do you mean by NOSQL?

d) Elaborate ETL.

e) Enlist limitations of SQL.

f) Define Hadoop YARN.

***Q2)*** Attempt the following:

a) i) Explain HDFs in brief. **[2]**

ii) Differentiate between SQL and NOSQL. **[4]**

b) Explain data integration pattern in detail. **[4]**

***Q3)*** Attempt the following:

a) i) List out mapreduce patterns of Big data. **[2]**

ii) Explain database work load and its characteristics. **[4]**

b) Explain industry applications of Big data in detail. **[4]**

***P.T.O.***

***Q4)*** Attempt the following:

a) i) Write 3 V's of Big data in detail. **[2]**

ii) Explain challenges of Big data in detail. **[4]**

b) Explain requirements of Big data warehouse system. **[4]**

***Q5)*** Attempt any two of the following.

a) Write case study for Linked In of Big data analytics. **[5]**

b) Introduce ETL using Spark. **[5]**

c) Write short note on Big data work load design approaches. **[5]**

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**Total No. of Questions : 5]**

**SEAT No. :**

**PA-3445**

**[Total No. of Pages : 2**

# [5921]-36

## 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 Q.2 to Q.5.***
3) ***Question 2 to Question 5 carry equal marks.***

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

a) Write command to create Django app in a project.

b) What is use of views. py file in Django?

c) What is the purpose of template tags in Django template?

d) How will you take all data from book table in a list.

e) Write a command to install REST framework on Django.

f) What is the use of Os. path. dirname (-- file --) in this method?

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

a) i) Explain role of urls. py file in Django. **[2]**

ii) What is the difference between a project and an app in Django. **[4]**

b) Explain how does Django frameworkworks. **[4]**

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

a) i) What is the use of the include function in the urls. py file in Django? **[2]**

ii) Explain how you can setup the database in Django with example. **[4]**

b) How can we create forms in Django. **[4]**

***P.T.O.***

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

a) i) Explain template variable. **[2]**

ii) Explain function based views with example in Django. **[4]**

b) Explain render() and Http response redirect() function in Django. **[4]**

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

a) Write a code to create simple Django student form using form class. **[5]**

b) Explain working of Django REST framework **[5]**

c) Write a code to serialize movie (id, tile, desc, year) data in serializer. py file. **[5]**

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