Total No. of Questions : 7]

SEAT No. : ____

P2681

[Total No. of Pages : 3

[6075]-211

F.Y.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 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) State any one difference between data mining and data warehousing.

b) What is machine learning?

c) What is Graph Mining?

d) Define Precision.

e) Define Data Mining.

f) What is Outlier?

Q2) Attempt the following:

a) i) State any two issues in data mining. **[2]**

ii) Explain sequence mining with example. **[5]**

b) Explain star schema with example. **[5]**

Q3) Attempt the following:

a) i) What is structure of snowflake schema? **[2]**

ii) What is sampling algorithm? Explain in brief. **[5]**

b) What are different tasks in data mining? **[5]**

P.T.O.

Q4) Attempt the following:

a) i) State the principle of Naive Bayes algorthm. **[2]**

ii) What are different issues faced in classification? **[5]**

b) Consider following set of transactions and generate candidate item sets with minimum support count of 2. Apply apriori algorithm to findout frequent item set. **[5]**

TID	Items
T1	Bread, Butter, Milk
T2	Bread, Butter
T3	Beer, Cookies, Diapers
T4	Milk, Diapers, Bread, Butter
T5	Beer, Diapers

Q5) Attempt the following:

a) i) Define data warehousing. **[2]**

ii) Consider the following data set. **[5]**

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) Write k-means algorithm. **[5]**

Q6) Attempt the following:

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

ii) Consider the following adjacency matrix and apply single link algorithm and draw dendrogram. **[5]**

Item	A	B	C	D	E
A	0	1	2	2	3
B	1	0	2	4	3
C	2	2	0	1	5
D	2	4	1	0	3
E	3	3	5	3	0

b) Write different applications of data mining. **[5]**

Q7) Attempt the following. (Any two)

a) Why we need data pre processing? **[6]**

b) Write a short Note on Linear Regression. **[6]**

c) Differentiate between OLTP and OLAP. **[6]**

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Total No. of Questions : 5]

SEAT No. : ____

P2686

[Total No. of Pages : 2

[6075]-216

F.Y.M.Sc. (Computer Application)

CA-CBOTP-2C : SOFTWARE TESTING (AUTOMATION)

(2019 Pattern) (Semester-II)

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

Instructions to the candidates:

1) ***Questions 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 are various selenium Suite components?

b) What is web element?

c) What is TESTNG?

d) What is selenium Grid?

e) What is page object model?

f) What is selenese?

Q2) Attempt the following:

a) i) Which language is usually used in selenium? **[2]**

ii) List and explain different types of locators in automation testing. **[4]**

b) How to set test case priority in TESTNG with selenium? **[4]**

Q3) Attempt the following:

a) i) What are uses of POM?. **[2]**

ii) What is the difference between selenium web driver and selenium Grid? **[4]**

b) How to capture error message using selenium web Driver? **[4]**

P.T.O.

Q4) Attempt the following:

a) i) What are nodes in selenium Grid? **[2]**

ii) What are different types of selenium commands? **[4]**

b) How to set up selenium Grid for cross browser testing? **[4]**

Q5) Attempt the following:

a) i) How to create sure fire report in moven. **[2]**

ii) List the steps to capture a screenshot. **[4]**

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

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Total No. of Questions : 5]

SEAT No. : ____

P-2692

[Total No. of Pages : 2

[6075]-316

M.Sc

COMPUTER APPLICATION

CA - CBOTP - 3C : Django

(2019 Pattern) (Semester - III)

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

Instructions to the candidates:

1) ***Q.1 is Compulsory.***
2) ***Solve any three from Q.2 to Q.5.***
3) ***Question 2 to 5 carry equl marks***
4) ***Draw neat labled diagram wherever necessary.***

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

a) What is the usage of Django setting. py file?

b) What is REST API?

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

d) How will you activate virtual environment for Django project.

e) Write command to install Django on your system.

f) What is the use of model. py file?

Q2) Attempt the following :

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

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

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

P.T.O.

Q3) Attempt the following :

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

ii) What is Django Admin interface 1 panel? How will you view it on browser. **[4]**

b) Explain model serializer in Django REST framework. **[4]**

Q4) Attempt the following :

a) i) What is out of the box Django feature? **[2]**

ii) What is REST API? Explain it with example. **[4]**

b) Explain Django's request/response cycle. **[4]**

Q5) Attempt any two of the following :

a) Explain form authentication in Django. **[5]**

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

c) Write a short note on generic view. **[5]**

Total No. of Questions : 7]

SEAT No. : ____

P-2675

[Total No. of Pages : 2

[6075]-111

M.Sc. (Computer Application)

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

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

a) What is Boostrap?

b) What is the use of echo() in PHP?

c) Define the terms : HTTP and FTP.

d) What is XML Schema?

e) Define the term : URL.

f) What is a variable function in PHP?

Q2) **Attempt all of the following :**

a) How XML is different from HTML? What are the benefits of XML? **[7]**

b) What is cascading style sheet? Explain inline style sheet with example.**[5]**

Q3) **Attempt the following :**

a) Explain client-side-scripting and server-side-scripting with uses and examples. **[7]**

b) Explain print-r() and var-dump() in php. **[5]**

P.T.O.

Q4) **Attempt the following :**

a) Explain Associative array in PHP.

Write the PHP script to accept subject - name and marks for 5 students using associative array and Display the data. **[7]**

b) Explain the use of Image Mapping in HTML with example. **[5]**

Q5) **Attempt the following :**

a) Explain in detail DOM architecture in Javascript. **[7]**

b) Write the HTML code to generate the following output : **[5]**

Name	Subject	Marks
Ajay	Operating System	70
	Web Technology	78
Vijay	Operating System	75
	Web Technology	60

Q6) **Attempt the following :**

a) How to use while statement in PHP? Write a PHP script to calculate Factorial of a given number using while statement. **[7]**

b) What is a string object in Java Script? How to concatenate strings in Javascript? **[5]**

Q7) **Write short note on any two of the following :**

a) HTML form Elements. **[6]**

b) Different types of arrays in Javascript. **[6]**

c) PHP Framework. **[6]**

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Total No. of Questions : 7]

SEAT No. : ____

P2676

[Total No. of Pages : 2

[6075]-112

F.Y.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 question from Q.2 to Q.7.***
3) ***Solve 2 to 7 carry equal marks.***

Q1) Solve any five questions. **[10]**

a) Explain the recoverable schedule?

b) State the properties of transaction?

c) Explain how to test conflict serializability?

d) Define primary key, candidate key?

e) Explain 5Nf?

f) Define blind writes.

Q2) Attempt the following:

a) Explain the cursor, its types with example. **[7]**

b) Consider a relation R (A,B,C,D,E,F). The set of FDs ie

F : $E \rightarrow A$, $E \rightarrow D$, $A_{A_5} \rightarrow C$, $A \rightarrow D$, $AE \rightarrow F$, $AG \rightarrow K$, Find the closure of E or E^+ (ie closure of set of Functional Dependencies) **[5]**

Q3) Attempt the following:

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

b) What do you understand by query processing and optimisation. **[5]**

P.T.O.

Q4) Attempt the following:

a) Explain the architecture of distributed database with diagram and its advantages and disadvantages. **[7]**

b) Explain characterizing Schedules based on serializability? **[5]**

Q5) Attempt the following:

a) Explain the concept of timestamp ordering protocol based on concurrency control? **[7]**

b) Consider the following two transaction & schedule (time goes from top to bottom). Is this schedule conflict-serializable? Explain why or why not. **[5]**

Transaction T_0	Transaction T_1
$r_0[A]$	
$w_0[A]$	
	$r_1[A]$
	$r_1[B]$
	c_1
$r_0[B]$	
$w_0[B]$	
c_0	

Q6) Attempt the following:

a) Explain the aries recovery algorithm with example. **[7]**

b) Differentiate between 2NF and 3NF? **[5]**

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

a) 2-phase locking technique.

b) XM L.

c) Dead lock prevention technique.

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Total No. of Questions : 7]

SEAT No. :

P-2677

[Total No. of Pages : 3

[6075]-113

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 Q.2 to Q.7.***
3) ***Questions 2 to 7 carry equal marks.***
4) ***Figures to the right indicate full marks.***

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

a) What is use of Bellman Ford algorithm?

b) What is P and NP?

c) What is SST?

d) What is principle of optimality?

e) What is Linear inequality?

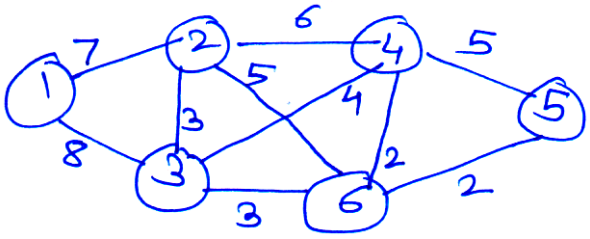
f) What is mean by Time Complexity?

Q2) **Attempt following :**

a) Solve following :

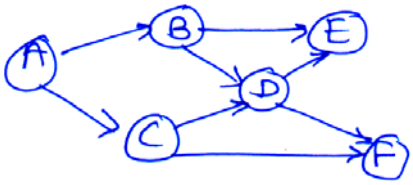
i) What are different types of edges. **[3]**

ii) Find MST of following graph. **[4]**



P.T.O.

b) Find topological sort of following graph. **[5]**

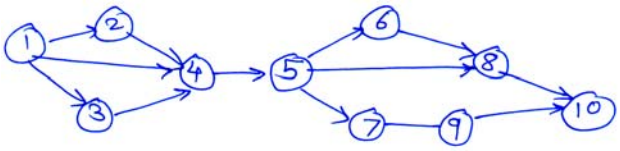


Q3) **Attempt following :**

a) What is Divide and conquer strategy? Apply Strassen's matrix multiplication to find product of following matrices. **[7]**

$$A = \begin{bmatrix} 12 & 34 \\ 22 & 10 \end{bmatrix} \quad B = \begin{bmatrix} 3 & 4 \\ 2 & 1 \end{bmatrix}$$

b) Write difference between BFS and DFS also find DFS of following graph. **[5]**



Q4) **Attempt following :**

a) Explain Heap sort. Also sort following array using heap sort, **[7]**

38, 26, 1, 3, 5, 8, 9, 32, 61, 31

b) Find solution of knapsack instance using VTS. Branch and Bound. **[5]**

p = (10, 15, 6, 8, 4) w = (4, 6, 3, 4, 2) n = 5, m = 12

Q5) **Attempt following :**

a) What is string editing? Perform it on following string. Also find minimum cost of editing **[7]**

X = ⟨a a b a b a⟩, Y = ⟨b a a b b a a⟩

b) Find minimum profit earned by arranging jobs in non-increasing order of profit. **[5]**

p = 3, 5, 22, 18, 2, 6, 30

d = 1, 3, 4, 3, 2, 1, 2

Q6) **Attempt following :**

a) What is SST? Draw SST for sum of subset with FTS. **[7]**

w = (15, 7, 20, 5, 18, 10, 12) m = 35.

b) Write difference between BB and Backtracking also write applications of both. **[5]**

Q7) **Solve any Two of following :** **[12]**

a) Write algorithm of Binary Search.

b) Explain matrix chain multiplication with example.

c) Cook's theorem and it's significance.

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

P-2678 **[Total No. of Pages : 3**

[6075]-114

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) ***Q.1 is Compulsory.***
2) ***Solve any three questions from Q.2 to Q.5.***
3) ***Question 2 to 5 carry equl marks***

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

a) State two rules of using default arguments.

b) Give the syntax of overloading insertion and extraction oprators.

c) List any two applications of OOP.

d) How many implicit & explicit arguments are required, if binary operator is overloaded using friend function?

e) When do we use multiple catch handler.

f) What is the order of execution of constructors class X, public Y, virtual public Z.

{

}

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

a) i) Define : **[2]**

1) Encapsulation
2) Early binding

ii) What is polymorphism? How it is achived in C++? Explain any one polymorphism with example. **[4]**

b) Explain how to open a file in C++ program. Describe various file opening mode. **[4]**

P.T.O.

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

a) i) Trace the output of the following program

```
#include <iostream.h>
Class X
{
Public :
  x( )
{
cout << “default constructor”;
}
X (const x &)
cout << “copy constructor\n”;
}
};
x usercode (x b)
{ x c = b;
return c;
}
Main ( )
{
x a ;
cout << “calling usercode()\n”;
x d = usercode (a);
cout << “Back in main()\n”;
}
```

[2]

ii) What is purpose of reference variable? Explain with the help of example. **[4]**

b) Explain two methods which are used to define member function. **[4]**

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

a) i) What will be the output of the following C++ statement **[2]**

1) cout. precision(2);

cout. width (6);

cout << 7.1234;

2) cout. width(4)

cout << 42<< 48;

ii) Write a C++ program to accept employee information eno, ename, salary, designation name of department for five employee using array of object. **[4]**

b) Explain function overloading with suitable example. **[4]**

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

a) Write a C++ program to read the following information in which base class consist of employee name, employee code & designation. The derived class contains data members namely, year-of-experience & age display whole information on the screen. **[5]**

b) Write a C++ program to overload increment and decrement operators. **[5]**

c) Explain scope resolution operator with its uses and example. **[5]**

Total No. of Questions : 5]

SEAT No. : ____

P-2679

[Total No. of Pages : 2

[6075]-115

F.Y. 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 Q2 to Q5.***
3) ***Questions 2 to Q5 carry equal mark.***

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

a) What is assembly?

b) What is CLR?

c) What is caching?

d) Write any two access modifiers.

e) What is cookie?

f) How CSS is applied to ASP.NET page?

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

a) i) What is Postback Event? **[2]**

ii) What is Interface? Explain with example. **[4]**

b) Explain classes and write a small program using class. **[4]**

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

a) i) What is garbage collection? **[2]**

ii) Draw and explain .NET framework architecture. **[4]**

b) What are the advantages of ADO.NET? **[4]**

P.T.O.

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

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

ii) Explain the difference between session and cookies in detail. **[4]**

b) What is CSS? Explain with its type & example. **[4]**

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

a) Explain namespaces & classes of ADO.NET. **[5]**

b) What is the difference between get() method and post () method. **[5]**

c) Explan inheritance & its types in detail with syntax. **[5]**

Total No. of Questions : 5]

SEAT No. :

P-2680

[Total No. of Pages : 2

[6075]-116

M.Sc. (Computer Application)

CA-CBOTP-1C : Software Testing (Manual)

(2019 Pattern) (Semester - I)

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

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Solve any 3 questions out of Q.2 to Q.5.***
3) ***Questions 2 to 5 carry equal marks.***

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

a) Testing phase is as important as development and coding phase of SDLC. Comment.

b) What is software build?

c) In which type of testing the test cases are not created in advance.

d) When VAT is performed and who performs it?

e) What is test execution?

f) What is meant by defect priority?

Q2) **Attempt the following :**

a) What is load testing and stress testing? **[4]**

b) What is defect severity? Explain how severity is classified? **[4]**

c) What are types of reviews? **[2]**

Q3) **Attempt the following :**

a) Distinguish between black box testing and white box testing. **[3]**

b) What are the steps involved in defect management process? **[3]**

c) Explain Agile model of software development with diagram. **[4]**

P.T.O.

Q4) **Attempt the following :**

a) Draw and explain the template of test case design. **[4]**

b) What is integration testing? What are different approaches to perform integration testing? **[4]**

c) What is non-functional testing? Give the examples of non-functional testing methods. **[2]**

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

a) What are the stepts in STLC? Explain each in 1-2 sentenses.

b) List five test case design techniques and explain any one in brief.

c) What does a text execution status report contain?

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Total No. of Questions : 7]

SEAT No. : ____

P2681

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[6075]-211

F.Y.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 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) State any one difference between data mining and data warehousing.

b) What is machine learning?

c) What is Graph Mining?

d) Define Precision.

e) Define Data Mining.

f) What is Outlier?

Q2) Attempt the following:

a) i) State any two issues in data mining. **[2]**

ii) Explain sequence mining with example. **[5]**

b) Explain star schema with example. **[5]**

Q3) Attempt the following:

a) i) What is structure of snowflake schema? **[2]**

ii) What is sampling algorithm? Explain in brief. **[5]**

b) What are different tasks in data mining? **[5]**

P.T.O.

Q4) Attempt the following:

a) i) State the principle of Naive Bayes algorthm. **[2]**

ii) What are different issues faced in classification? **[5]**

b) Consider following set of transactions and generate candidate item sets with minimum support count of 2. Apply apriori algorithm to findout frequent item set. **[5]**

TID	Items
T1	Bread, Butter, Milk
T2	Bread, Butter
T3	Beer, Cookies, Diapers
T4	Milk, Diapers, Bread, Butter
T5	Beer, Diapers

Q5) Attempt the following:

a) i) Define data warehousing. **[2]**

ii) Consider the following data set. **[5]**

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) Write k-means algorithm. **[5]**

Q6) Attempt the following:

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

ii) Consider the following adjacency matrix and apply single link algorithm and draw dendrogram. **[5]**

Item	A	B	C	D	E
A	0	1	2	2	3
B	1	0	2	4	3
C	2	2	0	1	5
D	2	4	1	0	3
E	3	3	5	3	0

b) Write different applications of data mining. **[5]**

Q7) Attempt the following. (Any two)

a) Why we need data pre processing? **[6]**

b) Write a short Note on Linear Regression. **[6]**

c) Differentiate between OLTP and OLAP. **[6]**

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Total No. of Questions : 7]

SEAT No. : ____

P-2682

[Total No. of Pages : 2

[6075]-212

F.Y. M.Sc. (Computer Application)

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 : **[5 × 2 = 10]**

a) What is the use of 'WC' command in UNIX?

b) Differentiate between internal and external command.

c) What is the difference between dot(.) and double dot(..)?

d) State the purpose of 'nice' command.

e) What is redirection?

f) What is use of Exit and Exit status command?

Q2) Answer the following :

a) i) Explain various ways of invoking and quitting vi Editor. **[3]**

ii) Explain 'type' command with options. **[4]**

b) Explain UNIX command structure with its components. **[5]**

P.T.O.

Q3) Answer the following :

a) i) What is shell? Explain different types of shells. **[3]**

ii) Explain 'find' command with example. **[4]**

b) Explain '1s' command with its options. **[5]**

Q4) Answer the following :

a) i) Differentiate between foreground and background process. **[3]**

ii) Write a shell script to count number of vowels in given string. **[4]**

b) Explain 'man' command with its options. **[5]**

Q5) Answer the following :

a) i) Illustrate positional parameters with example. **[3]**

ii) Write a note on Environmental variables. **[4]**

b) Describe in brief 'vi' Editor. **[5]**

Q6) Answer the following :

a) i) Write a short note on login promt. **[3]**

ii) Explain standard stream in I/O redirection. **[4]**

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

Q7) Attempt any <u>two</u> of the following : **[2 × 6 = 12]**

a) Explain what are different types of services provided by operating systems to user. **[6]**

b) Explain following commands with example: **[6]**

i) Cut

ii) Paste

iii) Sort

c) Explain different methods of changing file permission. **[6]**

Total No. of Questions : 7]

SEAT No. :

P2683

[Total No. of Pages : 2

[6075]-213

M.Sc. (Computer Applications)

CACCTP-6 : COMPUTER NETWORKS

(2019 Pattern) (Semester - II)

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

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Attempt any five questions from Q.2 to Q.7.***
3) ***Questions 2 to Q.7 carry equal marks.***

Q1) Attempt any 5 of the following : **[10]**

a) What is data communication? What are its components?

b) What is port address?

c) Define bit rate and jitter.

d) What is error control? How it is achieved by Data Link Layer?

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

f) What are non-adaptive routing algorithms?

Q2) Attempt the following :

a) What is www? Discuss its architecture in detail. **[7]**

b) What are the advantages of UDP over TCP? **[5]**

Q3) Attempt the following :

a) Differentiate between connection oriented and connectionless services with example. **[7]**

b) Discuss DS1 reference model in detail. **[5]**

Q4) Attempt the following :

a) Discuss the concept of multiplexing with its types. **[7]**

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

P.T.O.

Q5) Attempt the following :

a) Write a detailed note on routing algorithms. **[7]**

b) Explain Channelization in detail. **[5]**

Q6) Attempt the following :

a) What is line coding? What are its types? Convert the following data in NRZ-L & NRZ-1.

01001110 **[7]**

b) Discuss the design issues of network layer. **[5]**

Q7) Write short notes on following : **[12]**

a) HTTP transaction.

b) Flow control.

c) FDM.

Total No. of Questions : 5]

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F.Y.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 3 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 a collection in Java?

b) Define interface.

c) What is a JDBC statement?

d) What is "this" keyword?

e) List any two types of exceptions in Java.

f) What is the purpose of using packages in Java?

g) What is the purpose of system.gc() method in Java?

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

a) i) What is the difference between string and string Buffer in Java? **[2]**

ii) What is JDBC? What are the different types of JDBC drivers? **[4]**

b) What is exception? Explain with example. **[4]**

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

a) i) What are constructors in Java? Give the names of different types of constructors. **[2]**

ii) What is swing in Java? What are the components of swing? **[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]**

P.T.O.

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

a) i) What is the difference between doGet() and doPost() methods in servlets? **[2]**

ii) Explain the different stages in the life cycle of a servlet. **[4]**

b) Write a Java program that creates a simple applet that displays " Hello, World!" on the screen. **[4]**

Q5) Attempt any 2 of the following: **[10]**

a) What is inheritance in Java? List the different types of inheritance in Java. Explain any one with an example. **[5]**

b) What are the different scripting elements in JSP? Explain with an example. **[5]**

c) 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. **[5]**

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Total No. of Questions : 5]

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F.Y.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 Q.2 to Q.5.***
3) ***Questions 2 to 5 carry equal marks.***

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

a) State any one example of web services.

b) Write the meaning of RPC.

c) What do you understand by SOAP?

d) What do you mean by WSDL?

e) What does SOAP body contains?

f) What are various methods used in REST architecture?

Q2) Attempt the following:

a) i) State the major components of web services. **[2]**

ii) Explain web service architecture in brief. **[4]**

b) State the various disadvantages of SOAP. **[4]**

Q3) Attempt the following:

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

ii) State the various design guidelines for building RESTFUL web services. **[4]**

b) What are various WSDL key structural elements? **[4]**

P.T.O.

Q4) Attempt the following:

a) i) State any two limitations of WSDL. **[2]**

ii) How errors are handaled in SOAP? **[4]**

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

Q5) Attempt the following (any two):

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

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

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

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Total No. of Questions : 7]

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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) Write any Eight android versions.

b) What is use of Textview?

c) What is Alarms?

d) What is use of getWritable Database()?

e) Write any two phone Gap applications?

f) What is Xcode?

Q2) **Attempt the following :**

a) Explain the Android Architecture with suitable diagram. **[7]**

b) Write an android program to send the email using Intent. **[5]**

Q3) **Attempt the following :**

a) Explain Handlers and Runnable with example. **[7]**

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

P.T.O.

Q4) **Attempt the following :**

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

b) Write an android program to insert student details and display using SQLite. **[5]**

Q5) **Attempt the following :**

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

b) Write a note on Adapters and Widgets. **[5]**

Q6) **Attempt the following :**

a) What is menu? Explain its types. **[7]**

b) Write phone gap applicaiton for creating and searching contacts. **[5]**

Q7) **Write a short note on any Two :**

a) BroadCast Receiver. **[6]**

b) JSON Parsing. **[6]**

c) Intent. **[6]**

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Total No. of Questions : 7]

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S.Y.M.S.c. (Computer Application)
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 Q.2 to Q.7.***
3) ***Q.2 to Q.7 carry equal marks.***
4) ***Draw diagram wherever necessary.***

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

a) What is cloud in IOT? State at least two advantages of using cloud in IOT.

b) Define IOT and Explain 'Things' in IOT.

c) List the short range wireless communication technologies.

d) What is an actuator?

e) Explain in brief role of control unit in IOT.

f) What is micro controller?

Q2) Attempt the following:

a) Explain the following Cloud platforms: **[7]**

i) Saas ii) Paas

State the advantages and disadvantages of cloud computing platforms.

b) Compare Zigbee and Bluetooth protocols. **[5]**

P.T.O.

Q3) Attempt the following:

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

b) Explain wired communication protocols. in detail. **[5]**

Q4) Attempt the following:

a) i) What is XMPP? Explain in brief. **[4]**

ii) Explain layred protocol. **[3]**

b) Explain the concept of authenticating and encrypting the arduino data. **[5]**

Q5) Attempt the following:

a) Compare COAP and MQTT protocols. **[7]**

b) State at least five features of Python. **[5]**

Q6) Attempt the following:

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

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

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

a) Application of IOT.

b) IBM platform

c) Home automation using IOT.

d) Ethernet TCP/IP.

Total No. of Questions : 7]

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S.Y. M.Sc. (Computer Application)

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 5 questions from Q.2 to Q.7.***
3) ***Questions 2 to Q.7 carry equal marks.***

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

a) What are intelligent Agents?

b) Define search strategy.

c) What do you understand by local maximum.

d) What is declarative knowledge?

e) What are frames?

f) What is minimax search procedure in A1?

Q2) **Attempt the following :**

a) Write the algorithm for DFS with its advantages. **[7]**

b) Explain the production system in detail. **[5]**

Q3) **Attempt the following :**

a) What is backward chaining. Discuss its properties with example. **[7]**

b) Explain all premitive acts in Conceptual Dependency. **[5]**

P.T.O.

Q4) **Attempt the following :**

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

b) Discuss Dempster-Shafer theory. **[5]**

Q5) **Attempt the following :**

a) What is learning? Explain learning by taking advice. **[7]**

b) Write the script for Movie. **[5]**

Q6) **Attempt the following :**

a) Discuss & write the steps for conversion of predicate logic to clause form. **[7]**

b) Write Hill climbing algorithm in detail. **[5]**

Q7) **Write short notes on following :** **[12]**

a) Declarative knowledge

b) Reinforcement learning

c) Rule based systems in A1.

▽▽▽▽

Total No. of Questions : 5]

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

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

a) What is a Non-variable?

b) State the use of pop() method in list.

c) What are default arguments?

d) What is Data encapsulation?

e) State the use of OS walk() method.

f) Define exception.

Q2) Attempt the following :

a) i) Explain with syntax the Count() method in string. **[2]**

ii) List and describe the attributes of file object. **[4]**

b) Explain identity operator and membership operator. Give example of necessary. **[4]**

Q3) Attempt the following :

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

ii) Write a Python program to count the occurrences of a given number. **[4]**

b) Explain basic tuple operations. **[4]**

P.T.O.

Q4) Attempt the following :

a) i) Explain the pass-by value and pass-by-reference Mechanism. **[2]**

ii) Write a short note on multilevel inheritance. **[4]**

b) State the properties of Dictionary Keys. **[4]**

Q5) Attempt the following (any two) :

a) Write a program to check whether given number is prime or not. **[5]**

b) Write a program to find G.C.D of two numbers using recursion. **[5]**

c) Explain the built-in class attributes. **[5]**

Total No. of Questions : 5]

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

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

a) Define Hadoop.

b) Enlist 3 V's of Big Data.

c) List Characteristics of Big Data.

d) Explain Spark Sql.

e) What is YARN?

f) Describe Big data analytics.

Q2) Attempt the following :

a) i) Define following terms. **[2]**

I) HBase II) Pig

ii) Describe Analytics, Reporting and Visualizing. **[4]**

b) Write operations of spark sql in detail. **[4]**

Q3) Attempt the following :

a) i) What do you mean by data integration pattern. **[2]**

ii) Explain Hadoop Components in brief. **[4]**

b) Describe Big data design approaches. **[4]**

P.T.O.

Q4) Attempt the following :

a) i) What is Hadoop YARN. **[2]**

ii) Introduce programming with RDD's in brief. **[4]**

b) Explain Hadoop and its ecosystem. **[4]**

Q5) Attempt any two of the following :

a) Write case study for Facebook of Big Data Analytics. **[5]**

b) Discuss Big data & Master data management. **[5]**

c) Write case study for Google of Big data analytics. **[5]**

▽▽▽▽

Total No. of Questions : 5]

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M.Sc

COMPUTER APPLICATION

CA - CBOTP - 3C : Django

(2019 Pattern) (Semester - III)

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

Instructions to the candidates:

1) ***Q.1 is Compulsory.***
2) ***Solve any three from Q.2 to Q.5.***
3) ***Question 2 to 5 carry equl marks***
4) ***Draw neat labled diagram wherever necessary.***

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

a) What is the usage of Django setting. py file?

b) What is REST API?

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

d) How will you activate virtual environment for Django project.

e) Write command to install Django on your system.

f) What is the use of model. py file?

Q2) Attempt the following :

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

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

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

P.T.O.

Q3) Attempt the following :

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

ii) What is Django Admin interface 1 panel? How will you view it on browser. **[4]**

b) Explain model serializer in Django REST framework. **[4]**

Q4) Attempt the following :

a) i) What is out of the box Django feature? **[2]**

ii) What is REST API? Explain it with example. **[4]**

b) Explain Django's request/response cycle. **[4]**

Q5) Attempt any two of the following :

a) Explain form authentication in Django. **[5]**

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

c) Write a short note on generic view. **[5]**