

Total No. of Questions : 7]

SEAT No. :

PD3728

[Total No. of Pages : 2

[6488]-11

First Year M.Sc. (Computer Application)

CA - CCTP - 1 : WEB TECHNOLOGY

(2019 Pattern) (Semester - I) (Credit System)

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 world wide web (www)?
- b) Define : server side scripting.
- c) What is type casting in php?
- d) Define anonymous function in php.
- e) List any two string functions in Javascript.
- f) Mention any two benefits of using PHP framework.

Q2) Attempt the following.

- a) Define Event Handler. Write a Javascript to demonstrate event handling.[7]
- b) Explain 'Parameter passing by value' and 'Parameter passing by reference' in PHP with example. [5]

Q3) Attempt the following.

- a) Define DTD and schema compare between XML schema and DTD. [7]
- b) List any five benefits of using cascading style sheet. [5]

P.T.O.

Q4) Attempt the following.

- a) Discuss the structure of HTML document with its syntax and one suitable example. [7]
- b) Define the framework. Give details of any four php frameworks. [5]

Q5) Attempt the following.

- a) Compare indexed array and associative array in PHP with example. [7]
- b) How can you insert inline stylesheet in the HTML document? Discuss with example. [5]

Q6) Attempt the following.

- a) \$color - Array ('red', 'green', 'blue') Write a php program which will display the colors in the following way. [7]

Output : - red, green, blue

- blue
- green
- red

- b) What is a website? Explain the types of it. [5]

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

- a) Explain following control structures in php with syntax and example. [6]
 - i) While
 - ii) Foreach
 - iii) Continue statement
- b) Write the HTML code to display user Registration form with name, mobile no, email - id. & address. [6]
- c) What is function in Javascript? How to create and call it? Explain with example. [6]



Total No. of Questions : 7]

SEAT No. :

PD3729

[Total No. of Pages : 2

[6488]-12

**First Year 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 No. 1 is compulsory.*
- 2) *Solve any five questions from Q.2 to Q.7.*
- 3) *Questions to Q2 to Q7 carry equal marks.*

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

- a) A normalized data is more accurate. Comment.
- b) Explain with example the two special data types supported by PL/SQL
 - i) % TYPE
 - ii) % ROWTYPE
- c) How the cost of query is measured? What are the factors that contribute to query cost?
- d) What is parallel Database? How sort operation can be executed in parallel? (Give any one method).
- e) What are desirable properties of Distributed DBMS?
- f) What are the problems with semi-structured data?

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

- a) i) Consider the following relation R
R (A, B, C, D, E, F)
The set of functional dependencies which hold on R is **[4]**
 $F = \{A \rightarrow B, D \rightarrow E, F, B \rightarrow D, F \rightarrow E\}$
Find out whether attribute set {A} is the superkey of above relation.
 - ii) Explain how selection operation can be optimized? **[3]**
- b) Explain the following two methods of indexing text data. **[5]**
 - i) Inverted Index
 - ii) Signature files

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

- a) i) How to return multiple values from a PL/SQL function? Explain with proper example. **[4]**
 - ii) Explain in brief XML-DTD. **[3]**
- b) What is discretionary access control mechanism? Explain GRANT and REVOKE commands by mentioning their proper syntax. **[5]**

P.T.O.

- Q4)** Attempt the following : [12]
- a) i) Explain nested-loop join algorithm of implementing join operation. [4]
 - ii) Explain the two desirable properties of decomposition of a relation in brief. [3]
 - b) What are asynchronous replicas? Explain the two ways of maintaining asynchronous replicas. [5]
- Q5)** Attempt the following : [12]
- a) i) Explain the concepts of deferred updates and immediate updates. What recovery procedures are required in both these types of updates? [4]
 - ii) Explain Basic, Conservative and strict two phase locking techniques. [3]
 - b) Explain the three architectures of distributed databases in brief. [5]
- Q6)** Attempt the following : [12]
- a) i) Explain the four desirable properties of transaction. [4]
 - ii) In distributed databases, what are the different ways to handle lock and unlock requests? [3]
 - b) Explain mandatory access control mechanism. [5]
- Q7)** Attempt any two of the following : [12]
- a) Explain the three architectures of the parallel databases with proper diagrams. [6]
 - b) Define : [6]
 - i) Cascadless schedule
 - ii) Strict schedule
 - iii) Recoverable schedule
 - iv) Conflict serializable schedule
 - v) Result equivalent schedule
 - vi) Non serial schedule
 - c) Write a PL/SQL script which will create and open a cursor, will populate the cursor, with the student tuples having age > 20 and will print the count of the students by traversing through cursor. [6]



[6488]-13

First Year 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 Q.2 to Q.7
- 3) Questions 2 to 7 carry equal marks.

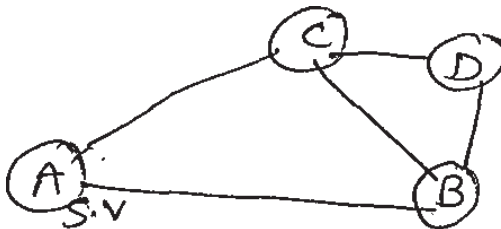
Q1) Solve any Five of the following :

[10]

- a) What is algorithm? What are the criteria's of it?
- b) Write note on asymptotic notation.
- c) Generate code ward using Huffman code.

a	b	c	d	e	f
50	12	11	15	7	3

- d) Find Hamiltonion cycle using backtracking for graph below:



- e) Give control abstraction of Greedy.
- f) State and explain cook's theorm.

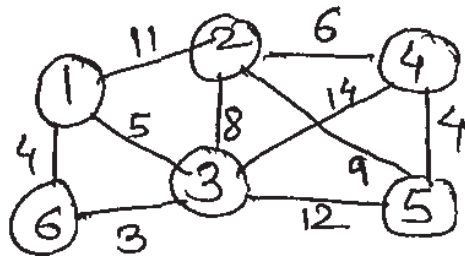
P.T.O.

Q2) Attempt the following : [12]

- a) Write Algorithm for Quick sort & also give recurrence relation of it. [7]
- b) Solve following:
 - i) Write algorithm of Tower of Hanoi. [2]
 - ii) Apply counting sort on 4, 1, 2, 0, 2. [3]

Q3) Attempt the following : [12]

- a) Solve following
 - i) Find minimum cost spanning tree using prim's algorithm. [5]



- ii) Write Difference between DFS and BFS [2]
- b) Perform matrix multiplication using strassen's matrix multiplication rule.

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

Q4) Attempt the following : [12]

- a) Find knapsack instance using LCBB VTS [7]

$$n = 5$$

$$m = 12$$

$$p = \{10, 15, 6, 8, 4\}$$

$$W = \{4, 6, 3, 4, 2\}$$

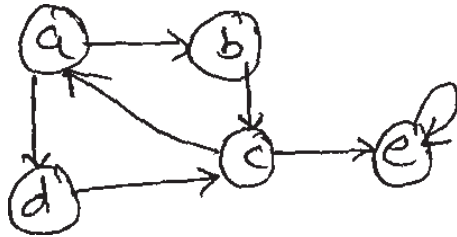
- b) Find maximum profit earned by 0/1 Knapsack using Dynamic programming (use merge-purge technique).

$$W = \{2, 4, 6, 9\} \quad P = \{10, 10, 12, 18\} \quad m = 15 \quad [5]$$

Q5) Attempt the following :

[12]

- a) Explain what is mean by strongly connected components of graph? Find strongly connected components & also find all different types of edges from DFS of graph. **[7]**



- b) Apply heap sort on 88, 39, 12, 5, 7, 1, 68, 72, 55 **[5]**

Q6) Attempt the following :

[12]

- a) Find solution for sum of subset using FTS & VTS both **[7]**
 $W = \{5, 7, 10, 13, 15\}$ $n = 5$, $m = 30$
- b) What is stable & unstable sorting? apply quick sort on 16, 9, 22, 31, 7, 12, 10, 21, 13, 29, 18, 20, 11 (pivot = 16) **[5]**

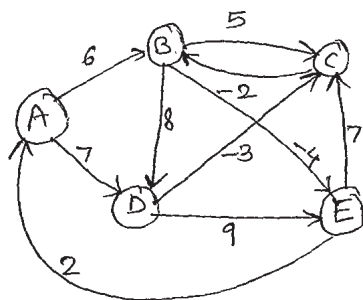
Q7) Attempt any two of following :

[12]

- a) Find optimal parenthesization for chain of matrix
 15×10 , 10×15 , 15×25 , 25×10
- b) Find minimum cost for traversing in TSP using reduced cost matrix for matrix below,

∞	25	31	40
5	∞	30	17
19	15	∞	24
9	50	6	∞

- c) Using Bellman ford Algorithm find shortest path.



Total No. of Questions : 5]

SEAT No. :

PD3731

[Total No. of Pages : 2

[6488]-14

First Year M.Sc. (Computer Applications)

**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) What is data abstraction?
- b) What is the purpose of reference variable?
- c) Write the meaning of IOS::trunc file mode parameter.
- d) Default constructor is always called without any arguments. State true/false.
- e) What is the use :: operator?
- f) What are the types of polymorphism?

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

- a)
 - i) Explain exception handling mechanism. **[2]**
 - ii) Write a short note on inline function. **[4]**
- b) Give the general format of class and state the significance of private, public & protected access specifier. **[4]**

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

- a)
 - i) Define manipulator. Explain setfill () with example. **[2]**
 - ii) State the rules for operator overloading. **[4]**
- b) Write a C ++ program to accept. Student information as Sno, Sname, sub1, sub2 for five students using array of object. Calculate total marks & display output. **[4]**

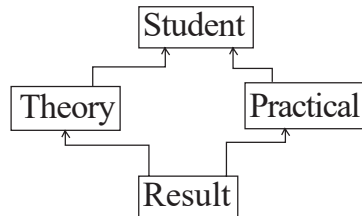
Q4) Attempt the following : **[10]**

- a)
 - i) Write characteristics of constructor. **[2]**
 - ii) What is purpose of pure virtual function? State the rules for virtual function. **[4]**
- b) Write a C ++ program to change the case of every alphabet in given text file. **[4]**

P.T.O.

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

- a) What are static data members? Explain with example. **[5]**
- b) Design the class using the following inheritance. Each class has member function accept & display. Write a program to accept details of n students & display their result. **[5]**



- c) Identify the output of the following (Assume that there are no syntax errors) **[5]**

```
#include<iostream.h>
using namespace std;
int main ( )
{
    cout.fill ('<');
    cout.precision (3);
    for (int n = 1; n <= 6; n++)
    {
        cout.width(5);
        cout<<n;
        cout.width (10);
        cout <<1.0/float (n) << "\n";
        if (n == 3)
            cout.fill ('>');
    }
    cout << "\n in padding changed \n \n".
    cout.fill ('#');
    cout.width (15);
    cout << 12.345678;
    return 0;
}
```



Total No. of Questions : 5]

SEAT No. :

PD3732

[Total No. of Pages : 2

[6488]-15

M.Sc.-I (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 from 2 to 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*

Q1) Solve any five of the following :

[5]

- a) What is CLR?
- b) What is the use of class libraryfile?
- c) What is metadata?
- d) What is the full form of JIT?
- e) What is Event?
- f) What is ADO.NET?

Q2) Attempt the following :

[10]

- a)
 - i) Define session and cookies. **[2]**
 - ii) Explain Dot Net compilation process in detail? **[4]**
- b) Differentiate between namespace and assembly? **[4]**

Q3) Attempt the following :

[10]

- a)
 - i) What are EXE and DLL? **[2]**
 - ii) Explain validation controls in ASP-NET? **[4]**
- b) Write a C#.NET Program to blink an Image on the form. **[4]**

P.T.O.

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

- a) i) Explain types of functions in C#. **[2]**
ii) Explain ASP.NET page life cycle in detail. **[4]**
- b) Write a C#.NET program to check palindrome number. **[4]**

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

- a) What is a DataAdapter in ADO.NET? Explain with example. **[5]**
- b) Explain event driven programming in detail. **[5]**
- c) List out any five HTML server controls and write the use in ASP.NET. **[5]**



Total No. of Questions : 5]

SEAT No. :

PD3733

[Total No. of Pages : 2

[6488]-16

First Year 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 three questions from Q.2 to Q.5.*
- 3) *Questions from 2 to 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*

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

- a) What is exploratory testing?
- b) Main focus of white box testing is on validation of the functionality of the module comment.
- c) What is test plan walk through?
- d) What is VAT?
- e) Testing is one of the phase in SDLC, to be performed after development phase. Comment.
- f) What are different types of reviews?

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

- a)
 - i) Write any four properties of prototype model. **[2]**
 - ii) Compare smoke testing & sanity testing. **[4]**
- b) Explain the defect life cycle with all possible states of defect. **[4]**

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

- a)
 - i) Describe Agile SDLC model in brief. **[3]**
 - ii) Explain any three test case design techniques. **[3]**
- b) What is usability testing? What are the goals of usability testing? **[4]**

P.T.O.

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

- a) i) What is the difference between load testing and stress testing? **[2]**
 - ii) Explain the term severity in context with defect report. Along with its levels. **[2]**
 - iii) List down the activities involved in test execution. **[2]**
- b) What are the steps involved in creating of test plan. **[4]**

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

- a) What are different parameters which are tested in compatibility testing?
What are the types of version testing? **[5]**
- b) With a proper diagram explain all the steps in STLC. **[5]**
- c) Write 5 test cases for sign-up page shown below. **[5]**

User name	
Password	
Confirm Password	
Mobile No.	
Sign-up Cancel	



Total No. of Questions : 7]

SEAT No. :

PD3734

[Total No. of Pages : 3

[6488]-21

**First Year 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 Q.2 to Q.7.*
- 3) *Question 2 to 7 carry equal marks.*

Q1) Solve any five of the following.

[5×2=10]

- a) Define summarization.
- b) What do you mean by machine learning?
- c) What is laplacian correction? Why is it required?
- d) Define confusion matrix.
- e) List the categories of clustering algorithms.
- f) Define Recall.

Q2) Answer the following.

- a) Explain linear classification. Also specify the various approaches used in this classification. **[7]**
- b) What is Data mining? Explain how knowledge discovery is achieved in data mining. **[5]**

Q3) Answer the following.

- a) What is frequent itemset? How vertical data format is used in mining frequent itemsets (give example) **[7]**
- b) Draw a decision tree for the following data that consists of training data from employee database. **[5]**

P.T.O.

Department	Status	Age	Salary	Count
Sales	Senior	31-35	46k-50k	30
Sales	Junior	26-30	26k-30k	40
Sales	Junior	31-35	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

Use Basic algorithm of decision tree induction classify the records by “Status” attribute.

Q4) Answer the following.

- State the features of R. Describe RATTLE. [7]
- What is clustering? State its applications. [5]

Q5) Answer the following.

- What is FP tree? [7]

Construct an FP tree for the following data:

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) Explain how k-means clustering algorithm works. [5]

Q6) Answer the following.

- a) Suppose that a data warehouse of a match Consists of four dimensions data, spectator, location and game and the two measures count and charge, where charge is the fare that spectator pays when watching a game on a given date, spectators may be students, adults or seniors, with each category having its own change rate.

Draw a star schema diagram for a given data warehouse. [7]

- b) Explain Bootstrap. Discuss the bootstrap methods. [5]

Q7) Write short notes on any two of the following. [2×6=12]

- a) Maximum Likelihood Estimation (MLE).
- b) OLAP in multidimensional data model.
- c) Classification and Regression Tree (CART).



Total No. of Questions : 7]

SEAT No. :

PD3735

[Total No. of Pages : 2

[6488]-22

First Year M.Sc. (Computer Application)

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

Q1) Solve any five of the following.

[10]

- a) Which command is used to Check Unix Version? State its parameters.
- b) What is the use of command kill-S State its syntax.
- c) List basic file types.
- d) What are the different types of standard files shell provides?
- e) Define Inode.
- f) Which commands are used to close vi editor?

Q2) Answer the following.

- a) What is shell? Describe different types of shell provided by Unix with example. **[7]**
- b) What are the different types of services provided by operating system to users. **[5]**

Q3) Answer the following.

- a) Explain different modes of vi editor with diagram. Give commands of each mode. **[7]**
- b) Write a shell program to find factorial of given number. **[5]**

P.T.O.

Q4) Answer the following.

- a) What is Path? Discuss Relative and Absolute path Names. Give examples for both paths for some operations. [7]
- b) Write a shell program to reverse the digits of five digit integer. [5]

Q5) Answer the following.

- a) Explain man command with keyword option. Give 7 different keyword option with syntax and example. [7]
- b) Explain shells Interpretive Cycle with diagram. State activities performed by the shell in interpretive cycle. [5]

Q6) Answer the following.

- a) What is system call? Explain types of system calls in detail. [7]
- b) What is file? Explain three kinds of file permissions in Unix with example. [5]

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

- a) Login Prompt
- b) Kill command and its signals
- c) Process control Box



Total No. of Questions : 7]

SEAT No. :

PD3736

[Total No. of Pages : 2

[6488]-23

**M.Sc.-I (Computer Application)
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) *Answer any five questions from Q.2 to Q.7.*
- 3) *Q.2 to Q.7 carry equal marks.*
- 4) *Neat diagrams must be drawn whenever necessary.*
- 5) *Use of scientific calculator is allowed.*

Q1) Solve any five questions.

[5×2=10]

- a) Define term topology. List any two types of topologies.
- b) List the names of user support layers in OSI model? What is the importance of these layers?
- c) Write any two services of physical layer.
- d) Slotted ALOHA reduces chances of collisions to one-half. State True/False. Justify.
- e) Convert IPv4 address 129.100.5.20 from decimal notation to binary notation and write the name of class.
- f) The UDP is connectionless, unreliable transport protocol. State True/False. Justify.

Q2) Attempt the following.

- a) i) What is protocol? Explain 3 elements of protocol. **[4]**
ii) Define terms Point to Point, Broadcasting and Multicasting. **[3]**
- b) What is the use of addressing scheme? Explain 4 types of addressing schemes. **[5]**

Q3) Attempt the following.

- a) Solve the following problems.
 - i) A signal travels from point A to point B. At point A the signal power is 150W. At point B it is 80W. Calculate attenuation in db. Is signal is attenuated or amplified? **[4]**
 - ii) A noiseless 6 kHz channel can transmit signal with 8 levels. Calculate maximum data rate. **[3]**
- b) Explain five performance criteria of network. **[5]**

P.T.O.

Q4) Attempt the following.

- a) i) Draw NRZ – L, NRZ – I, Manchester and Differential Manchester line coding schemes for binary data 01101001. [4]
- ii) Explain stop and wait protocol for noiseless channel. [3]
- b) Find transmitted message using CRC technique. If message is 1101011011 and polynomial is $G(x) = X^4 + X + 1$. [5]

Q5) Attempt the following.

- a) i) Differentiate between IPv4 and IPv6 protocols. [4]
- ii) Write three services of Network layer. [3]
- b) What is use of checksum? Explain three sections of checksum. [5]

Q6) Attempt the following.

- a) i) Differentiate between TCP and UDP. [4]
- ii) What is significance of Byte number, Sequence number and acknowledgment number in TCP protocol? [3]
- b) What are the two types of FTP connection? Explain how communication takes place for any one type. [5]

Q7) Write a note on any two of the following. [2×6=12]

- a) Methods of framing at data link layer.
- b) Properties of routing algorithm.
- c) Controlled access methods - Reservation, Polling and Token Passing.



Total No. of Questions : 5]

SEAT No. :

PD3737

[Total No. of Pages : 2

[6488]-24

**First Year M.Sc. (Computer Application)
CA-CBOTP-2A: JAVA PROGRAMMING
(2019 Pattern) (Semester - II)**

Time : 2 Hours]

[Max. Marks : 35

Instructions to the candidates:

- 1) *Q.1 is compulsory.*
- 2) *Attempt any 3 questions out of Q.2, Q.3, Q.4, Q.5.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable data if necessary.*

Q1) Attempt any five of the following.

[5×1=5]

- a) What do you mean by a bytecode?
- b) Define wrapper class.
- c) What is the difference between Error and Exception?
- d) What do you mean by Scrollable Result set?
- e) Write a syntax of the APPLET tag.
- f) Give any two implicit object in JSP.

Q2) Attempt the following.

[10]

- a) List any four Layout Managers.
- b) List the types of Inheritance. Explain any one.
- c) Explain the Life cycle of servlet

[2]

[4]

[4]

Q3) Attempt the following.

[10]

- a) What is the difference between Java & C++?
- b) Explain Garbage collection Mechanism in Java.
- c) Can a class can be a superclass and a subclass at the same time? Explain with the example.

[2]

[4]

[4]

Q4) Attempt the following.

[10]

- a) What are the parameters of the doGet method?
- b) Write a note on JDBC metadata.
- c) Explain in short.
 - i) Driver Manager
 - ii) Prepared Statement
 - iii) Assertion
 - iv) Exception

[2]

[4]

[4]

P.T.O.

Q5) Attempt any two.

[2×5=10]

- a) Define a class Employee (id, name, salary). Define a subclass Manager (Bonus) from Employee. Create n objects of Manager class. Accept & display the manager details. **[5]**
- b) Write a Java program that accepts user name and password and throws Exception “Invalid login” if they do not match. **[5]**
- c)
 - i) Explain: Input stream with example. **[3]**
 - ii) What do you mean by Anonymous class in Java? **[2]**



Total No. of Questions : 5]

SEAT No. :

PD3738

[Total No. of Pages : 2

[6488]-25

**First Year M.Sc. (Computer Application)
CA - CBOTP - 2B : WEB SERVICES
(2019 Pattern) (Semester - II)**

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 equal marks.

Q1) Solve any five of the following.

[5]

- a) What is HTTP?
- b) Give the meaning of SOAP?
- c) Write any one feature of UDDI.
- d) State the different communication styles supported by SOAP.
- e) Write one classic example of stateless property of web service.
- f) Write the major elements of WSDL.

Q2) Attempt any two of the following.

[10]

- a) Illustrate the structure of SOAP message.
- b) State the WSDL key structural elements.
- c) What are the various methods used in REST architecture?

Q3) Attempt any two of the following.

[10]

- a) What are the various elements of WSDL document?
- b) State the contents of SOAP header block.
- c) Give the challenges using web services.

P.T.O.

Q4) Attempt any two of the following. **[10]**

- a) What is ISON? Explain its message format.
- b) Write the procedure to send the call and get the response from the client to server using SOAP.
- c) Give the limitations of UDDI.

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

- a) Write a short note on building SOAP web services.
- b) Write the basic steps to be followed for the implementation of web services.
- c) Explain the data structures used in UDDI.



Total No. of Questions : 5]

SEAT No. :

PD3739

[Total No. of Pages : 1

[6488]-26

M.Sc. - I (Computer Application)
CA-CBOTP-2C: SOFTWARE TESTING (Automated)
(2019 Pattern) (Semester - II)

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) *Questions 2 to 5 carry equal marks.*

Q1) Solve any five of the following. [5]

- a) State any one limitation of Selenium testing.
- b) Why HTML is considered as Web Element?
- c) State any one difference between Selenium and QTP Tools.
- d) Give the use of Grid in Selenium.
- e) When to use page object model?
- f) Give the requirement of Nodes in Selenium Grid.

Q2) Attempt any two of the following. [10]

- a) Give advantages of Test NG.
- b) What are the capabilities of Selenium remote Web Driver?
- c) Explain different types of Selenium commands.

Q3) Attempt any two of the following. [10]

- a) List the different features provided by Test NG.
- b) Differentiate between maxSession and maxInstance in Selenium Grid.
- c) How to set Testcase priority in Test NG with Selenium?

Q4) Attempt any two of the following. [10]

- a) How to handle Auto suggestion in Selenium web Driver?
- b) What is the use of X-path?
- c) How can we configure Selenium grid using JSON file?

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

- a) Write a short note on different types of waits in selenium web Driver.
- b) What are the different components of the selenium suite?
- c) Write a note on Exclude / Include test cases in Test NG.



Total No. of Questions : 7]

SEAT No. :

PD3740

[Total No. of Pages : 2

[6488]-31

Second Year 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 Q.7.
- 3) Questions from Q.2 to Q.7. carry equal marks.
- 4) Draw diagram wherever necessary.

Q1) Solve any five of the following:

[10]

- a) What is a content provider and what is the typically used for?
- b) Describe any two common uses for using an intent.
- c) Describe any two types of services in android.
- d) What is the difference between AsyncTask vs Tread?
- e) Any two application which is designed with phone gap.
- f) What is Restful Web Services?

Q2) Attempt the following.

[12]

- a) With the help of diagram describe android architecture. **[7]**
- b) Explain broadcast receiver with example. **[5]**

Q3) Attempt the following.

[12]

- a) Write an application programs (DB Handler, XML and Activity) to select all records from Book (id, name, author, price) using SQLite. **[7]**
- b) What is Menu? Explain different types of Menu. **[5]**

P.T.O.

Q4) Attempt the following. [12]

- a) Why use PhoneGap? How PhoneGap Works? Any 3 limitations of PhoneGap? [7]
- b) What is IOS? Write an features of IOS. [5]

Q5) Attempt the following. [12]

- a) Write an applications programs (XML, Java, Manifest) to navigating the Map to a specific location. [7]
- b) With the help of diagram explain Architecture of IOS. [5]

Q6) Attempt the following. [12]

- a) What is Notification? Explain with the example how to display notifications? [7]
- b) What is Toast? Explain Toast with example. [5]

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

- a) Constraint layout
- b) Array Adapter
- c) Xcode



Total No. of Questions : 7]

SEAT No. :

PD3741

[Total No. of Pages : 2

[6488]-32

**S.Y. M.Sc. (Computer Application)
CACCTP-8 : INTERNET OF THINGS (IoT)
(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 to 2 to 7 carry equal marks.*

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

- a) Explain MQTT protocol
- b) What is SOC?
- c) Define term : IAAS
- d) What is Gas Sensor?
- e) Explain term GPIO.
- f) What is IoT privacy?

Q2) Attempt the following : [12]

- a) Explain with the help of diagram cloud based architecture. [7]
- b) Define the following term : [5]
 - i) ZigBee
 - ii) WiFi
 - iii) RF Links
 - iv) HTTP
 - v) Bluetooth

Q3) Attempt the following :

- a) Write case study for smart parking in IoT. [7]
- b) What is Raspberry PI? Explain the features of Python. [5]

Q4) Attempt the following :

- a) Explain architecture of IoT with the help of diagram. [7]
- b) Difference between PaaS & SaaS. [5]

P.T.O.

Q5) Attempt the following :

- a) Explain working principles of sensors with the help of diagram. [7]
- b) Explain in detail Ethernet TCP/IP. [5]

Q6) Attempt the following :

- a) Explain any two IoT based platforms. [7]
- b) Explain simple Ethernet server example. [5]

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

- a) How sensor works?
- b) OSGi Architecture
- c) Infrastructure as a service



Total No. of Questions : 7]

SEAT No. :

PD3742

[Total No. of Pages : 2

[6488]-33

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

CA-CC TP - 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 Q.2 to Q.7
- 3) Questions 2 to 7 carry equal marks.

Q1) Solve any Five of the following :

[10]

- a) What is AI?
- b) Define Blind search Technique.
- c) List the advantages of A* algorithm.
- d) Define knowledge.
- e) What are frames? List any two advantages of frames.
- f) List the properties of mini-max algorithm.

Q2) Attempt the following :

- a) Describe steepest Ascent hill climbing algorithm. **[7]**
- b) Discuss the different types of knowledge. **[5]**

Q3) Attempt the following :

- a) What is learning? Explain different types of learning in detail. **[7]**
- b) Give the state space representation for “Monkey - Banana” Problem. **[5]**

P.T.O.

Q4) Attempt the following :

- a) Discuss the Bayesian Theory and Bayesian Network in detail. [7]
- b) Consider the following three FOPL statements. Using resolution, prove FIDO WILL DIE. [5]
 - i) $\forall x : \text{dog}(x) \rightarrow \text{animal}(x)$
 - ii) $\text{dog}(\text{FIDO})$
 - iii) $\forall y : \text{animal}(y) \rightarrow \text{die}(y)$

Q5) Attempt the following :

- a) Explain alpha - beta pruning with the help of appropriate example. [7]
- b) Consider the following axioms. [5]
 - i) All hounds howl at night.
 - ii) Anyone who has any cats will not have any mice.
 - iii) Light sleepers do not have anything which howls at night.
 - iv) Ram has either cat or a hound. (conclusion) If Ram is a light sleeper, then Ram does not have any mice. Convert the above axioms to wff in first order predicate logic and transform each clause to conjunctive normal form.

Q6) Attempt the following :

- a) Explain Means and analysis with example. [7]
- b) Translate the following statement in FOPL. [5]
 - i) There is a mushroom that is purple and poisonous.
 - ii) There is a bunny who is cute.

Q7) Attempt the following :

- a) Discuss the problem characteristics in detail. [4]
- b) Heuristic search is used to solve simple problems. State true or false and justify the answer. [4]
- c) Write a note on semantic Networks. [4]



Total No. of Questions : 5]

SEAT No. :

PD3743

[Total No. of Pages : 2

[6488]-34

**S.Y. 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 from 2 to 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*

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

- a) State the use of none variable in Python.
- b) Give the syntax for range () function. State its use.
- c) What is set in Python? Which function is used to create a set?
- d) What do you mean by keyword argument?
- e) Write the use of seek () function. Give syntax.
- f) What do you mean by data hiding in python?

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

- a)
 - i) What are generators is python. **[2]**
 - ii) Write a python program which accepts 10 integers values and prints "Duplicate" if any value entered is duplicate otherwise prints "Unique". **[4]**
- b) Explain any four set operations with proper example. **[4]**

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

- a)
 - i) Write a python program to read a file and capitalize the first letter of every word in the file. **[2]**
 - ii) Explain in details the methods : instance methods and class methods. **[4]**
- b) Explain user defined exceptions with proper example. **[4]**

P.T.O.

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

- a) i) What is the use of OS-Walk () method. **[2]**
ii) Write a python program to count the occurrences of given number. **[4]**
- b) Explain the concept of operator overloading with proper example. **[4]**

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

- a) Write a program which prints fibonacci series of a number. **[5]**
- b) Explain the concept of “mutable” for dictionary. Write about any four built-in dictionary methods. **[5]**
- c) Explain in detail the concept of ducletyping with proper example. **[5]**



Total No. of Questions : 5]

SEAT No. :

PD3744

[Total No. of Pages : 2

[6488]-35

S.Y. 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 from Q.2 to Q.5.*
- 3) *Questions from 2 to 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*

Q1) Solve any five of the following :

[5]

- a) Define Big data.
- b) State the difference between SQL and NOSQL.
- c) Explain Big data Analytics.
- d) Define Hadoop.
- e) Explain spark SQL.
- f) What is YARN?

Q2) Attempt the following :

[10]

- a)
 - i) Explain any two characteristics of Big Data. **[2]**
 - ii) Differentiate between relational database management systems (RDBMS) & Non Relational Database. **[4]**
- b) Define following terms. **[4]**
 - i) H Base
 - ii) Hive
 - iii) Pig
 - iv) Mahout

Q3) Attempt the following :

[10]

- a)
 - i) List out any four Bigdata platforms. **[2]**
 - ii) Explain HDFS in detail. **[4]**
- b) Differentiate between Hbase and Hive. **[4]**

P.T.O.

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

- a) i) Define RDD. **[2]**
ii) Explain mapreduce in detail. **[4]**
- b) Write down any four applications of Big data in detail. **[4]**

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

- a) Write down case study for Netflix of Big data analytics. **[5]**
- b) Introduce Machine Learning with Mlib. **[5]**
- c) Write short note on Hadoop and its ecosystem. **[5]**



Total No. of Questions : 5]

SEAT No. :

PD3745

[Total No. of Pages : 2

[6488]-36

S.Y. 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) *Questions from 2 to 5 carry equal marks.*
- 4) *Figures to the right indicate full marks.*

Q1) Solve any five of the following :

[5]

- a) Write command to create Django project 'Mysite'.
- b) What does {% include %} does in Django template?
- c) What is the use of manage.py file in Django?
- d) Why we need serializers in Django REST framework?
- e) What is the difference between media and static file settings?
- f) Which function is used to generate cookies via Django?

Q2) Attempt the following :

[10]

- a)
 - i) What is Django model form? **[2]**
 - ii) Explain advantages of Django framework. **[4]**
- b) Explain Django model in brief. **[4]**

Q3) Attempt the following :

[10]

- a)
 - i) Explain use of migration command in Django. **[2]**
 - ii) Write a note on DRY programming in Django. **[4]**
- b) Write a code to create employee table in Database containing first name and lastname fields. **[4]**

P.T.O.

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

- a) i) What is static file in Django? **[2]**
ii) Explain model serializer in Django Rest Framework. **[4]**
- b) Explain syntax of conditional and loop statement template tags in Django. **[4]**

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

- a) Explain GET, PUT, POST and DELETE methods in Django REST APF. **[5]**
- b) Write a code to serialize movie (id, title, desc, year) data in serializer.py file. **[5]**
- c) What is Django REST framework? Explain in detail. **[5]**

