

Total No. of Questions : 4]

SEAT No. :

PE3489

[Total No. of Pages : 2

[6527]-101

First Year B.Com. (Computer Application)
PSC 101 T : PROBLEM SOLVING USING C
(NEP) (2024 Credit Pattern) (Semester - I)

Time : 2 Hours]

[Max. Marks : 30

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Attempt any six of the following:

[6]

- a) List any two features of C Language.
- b) What is the use of sqrt () function in C?
- c) Evaluate the expression $\text{int } a=2+3*5/2-6+7\%2+4$; and predict the value of a.
- d) The default case is necessary and compulsory to use in switch statement? State true or false.
- e) What is scope of variable?
- f) How do you declare 1D array in C?
- g) List any two storage classes of C.
- h) What is an array?

Q2) Attempt any FOUR of the following:

[8]

- a) Explain scanf () function with syntax and example.
- b) Explain different ways of writing comments in C.
- c) Write rules for integer literals.
- d) Explain types of functions in C.
- e) Explain types of arrays in C.

P.T.O.

Q3) Attempt any two of the following: **[8]**

- a) Explain if-else statement with syntax and example.
- b) Differentiate between while and do-while loop.
- c) Write a C Program to display multiplication table of a input number.

Q4) Attempt any two of the following: **[8]**

- a) Explain advantages and disadvantages of arrays.
- b) Write a program using user defined function to check whether a input number is even number or odd number.
- c) Write a C program to calculate simple interest.



Total No. of Questions : 2]

SEAT No. :

PE4881

[Total No. of Pages : 2

[6527]-102

F.Y. B.Com. (Computer Application)
OE 101 CA : BUSINESS MATHEMATICS
(NEP 2024 Credit Pattern) (Semester - I)

Time : 2 Hours]

[Max. Marks : 30

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Use of Calculator is allowed.*
- 4) *Notation have their usual meanings.*

Q1) A) Choose the correct option from the following options. **[4×2=8]**

- a) 25% of 800 is _____
 - i) 100
 - ii) 200
 - iii) 250
 - iv) 150
- b) The price at which the articles are sold is called _____ price.
 - i) Selling price
 - ii) Cost price
 - iii) Marked price
 - iv) None of these
- c) In how many years simple interest on ₹100 at the rate of 6% p.a. be ₹36?
 - i) 3
 - ii) 5
 - iii) 6
 - iv) 7
- d) If C.P. = 100 and S.P. = 112 then percentage profit will be.
 - i) 12%
 - ii) 6%
 - iii) 18%
 - iv) None of these

B) State whether the following statement is true or false. **[2×1=2]**

- a) EMI means Equated Monthly Installment.
- b) The excess of revenue is called as profit.

P.T.O.

Q2) Attempt any five of the following.

[5×4=20]

- a) If $a : b = 4 : 7$ and $b : c = 9 : 5$ then find $a : c$.
- b) Write short note on dividend and bonus shares.
- c) A salesman gets 5% commission in his sales. If he gets a commission of ₹870 in a month, find his sales in that month.
- d) Explain different types of mutual funds.
- e) Goods worth ₹6,000 are purchased. What should be the selling price to earn a profit of 12%.
- f) What will be the simple interest on ₹1,200 at 10% p.a. for two years?
- g)
 - i) Find x if $6 : 15 :: 2 : x$.
 - ii) Find fourth proportional to 6, 8, 10.



Total No. of Questions : 4]

SEAT No. :

PE3490

[Total No. of Pages : 2

[6527]-103

First Year B.Com. (Computer Application)
DBM 102T : DATABASE MANAGEMENT SYSTEM
(2024 Credit Pattern) (Semester - I)

Time : 2 Hours]

[Max. Marks : 30

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*

Q1) Attempt any SIX of the following (Out of EIGHT):

[6×1=6]

- a) Define DBMS.
- b) Define Logical Data Independence.
- c) Give the syntax of UPDATE TABLE Command in SQL.
- d) List types of Data Models.
- e) Define Primary Key.
- f) List Data types in SQL.
- g) State the rules of Second Normal Form (2NF).
- h) State any four DDL commands in SQL.

Q2) Attempt any FOUR of the following (Out of FIVE):

[4×2=8]

- a) Explain any 2 Applications of DBMS.
- b) Differentiate between Specialization and Generalization.
- c) Explain Simple Attribute and Composite Attribute.
- d) Explain Order by clause in SQL with an example.
- e) Explain the Basic structure of SELECT Query in SQL.

P.T.O.

Q3) Attempt any TWO of the following (Out of THREE): **[2×4=8]**

- a) Define Data Abstraction. Explain Levels of Data Abstraction.
- b) Explain the following aggregate function in SQL.
 - i) sum()
 - ii) min()
- c) In a nursery, the plants are sold to the customers, these plants are flowering and non-flowering only. Nutrients are given to the plant with some quantity. Nutrients include pesticides, watering and Manure.
 - i) Identify all entities.
 - ii) Identify all relations.

Q4) Attempt any TWO of the following (Out of THREE): **[2×4=8]**

- a) Consider the following entities and their relationships.
Dept(dno, dname, loc)
Emp(eno, ename, designation, salary, Date_of_Joining)
The relationship between Dept & Emp is One-to-Many.
Write the SQL queries for the following.
Display the names of employees whose salary is greater than 50000 and department is “HR”.
- b) Consider the following entities and relationships
Patient (PCode, Name, Addr, Disease)
Bed (BedNo, RoomNo, loc)
The relationship between Patient and Bed is One to One
Write the SQL queries for the following.
 - i) Display the disease of patient whose BedNo is 2.
 - ii) Display the RoomNo and BedNo of patient whose name is “Mr. Akash”.
- c) Explain Types of Entities.

x x x

Total No. of Questions : 4]

SEAT No. :

PE-3491

[Total No. of Pages : 2

[6527]-104

F.Y. B.Com. (Computer Application)

AEC-101T : BUSINESS COMMUNICATION SKILLS - I
(2024 Pattern) (Semester - I)

Time : 2 Hours]

[Max. Marks : 30

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Write answer any 5 out of 7 :

[5]

- a) Define grapevine communication.
- b) What are the elements of communication?
- c) Define listening.
- d) What are the steps to follow when writing a blog?
- e) What is Twitter (X com)?
- f) Write any four types of report.
- g) What is minutes of meeting?

Q2) Write short notes any 2 out of 3 :

[8]

- a) Explain the process of communication.
- b) Give tips for writing good report.
- c) What is video conferencing? Give advantages and disadvantages.

Q3) Write answer any 1 out of 2 :

[7]

- a) What is social media communication? Explain the tools of social media communication.
- b) What is written communication? Explain types of written communication?

P.T.O.

Q4) Write answer any 1 out of 2 :

[10]

- a) What is communication? Explain it's types.
- b) Define memo. Explain about drafting of memo.



Total No. of Questions :4]

SEAT No. :

PE3492

[Total No. of Pages : 2

[6527]-105

F.Y. B.Com. (Computer Application)

**SEC 101 CA: PROGRAMMING PRINCIPLES AND
ALGORITHM**

(2024 Credit Pattern) (Semester - I) (NEP 2020)

Time : 2 Hours]

[Max. Marks : 30

Instructions to the candidates:

- 1) *All questions are compulsory*
- 2) *Figures to the right indicate full marks.*

Q1) Attempt any six of the following:(1 mark each)

[6]

- a) Types of Recursions
- b) Write the types of Arrays.
- c) Define Array.
- d) Draw the Flowchart Symbol of Process, Terminal Decision, Connector.
- e) Write the definition of Algorithm.
- f) Write the Definition of Flowchart.
- g) Write the Definition of Recursion.
- h) Give an Example of palindrome number

Q2) Attempt any four of the following : (2 marks each)

[8]

- a) Write the algorithm to find the sum of two number.
- b) Write the advantages and disadvantages of recursion.
- c) Write the use of flowchart.
- d) Describe the advantages and disadvantages of algorithm.
- e) Write an algorithm to find the largest of three number.

P.T.O.

Q3) Attempt any two of the following (4 marks each)

[8]

- a) Explain Types of algorithm.
- b) Write Comparison between algorithm and flowchart.
- c) Write algorithm and flowchart for factorial of number is given.

Q4) Attempt any two of the following (4 marks each)

[8]

- a) Explain program development cycle.
- b) Draw a flowchart for addition of two matrices.
- c) Explain mean and median of N Number with example.



Total No. of Questions : 3]

SEAT No. :

PE-5011

[Total No. of Pages : 2

[6527]-106
F.Y. B.Com.
COMPUTER APPLICATION
OE-102-CA : PRINCIPLES AND PRACTICES OF
MANAGEMENT
(2024 Credit Pattern) (Semester - I)

Time : 2 Hours]

[Max. Marks : 30

Instructions to the candidates :

- 1) All questions are compulsory.*
- 2) Figures to the right indicate full marks.*

Q1) A) Multiple choice questions:

[5 × 1 = 5]

- i) Levels of Management can be divided into _____ classes.
 - a) 1
 - b) 3
 - c) 4
 - d) 2
- ii) _____ Principles of Management is concerned with promoting team spirit.
 - a) Equity
 - b) Scalar
 - c) Unity of Command
 - d) Esprit de corps
- iii) Management is a _____.
 - a) Pure science
 - b) Applied Science
 - c) Art
 - d) Art and Science Both
- iv) _____ means assigning work to others.
 - a) Delegation
 - b) Staffing
 - c) Motivation
 - d) Directing
- v) _____ is concerned with future events.
 - a) Directing
 - b) Decision Making
 - c) Forecasting
 - d) Organizing

P.T.O.

B) Match the following :**[5]**

A	B
i) F. W. Taylor	a) Outcome Based
ii) Scalar Principle	b) Management by objective
iii) Peter F. Drucker	c) Fair Opportunity of Promotion
iv) Extrinsic Motivation	d) Scientific Management
v) Non - monetary motivation for employees	e) Line of Authority and Responsibility

Q2) Answer in Brief (Any 1 out of 2) :**[1 × 10 = 10]**

- a) Explain General 14 principles of management?
- b) Explain Various types of Planning

Q3) Write short notes (Any 2 out of 4) :**[2 × 5 = 10]**

- a) Functions of Management.
- b) Steps involved in Decision Making Process.
- c) Maslow's Pyramid of Human Needs.
- d) Management by Objective.



Total No. of Questions :5]

SEAT No. :

PE3493

[Total No. of Pages : 2

[6527]-201

S.Y. B.Com. (Computer Application)
MJ-201-CCA-T : DATA STRUCTURE
(2024 Credit Pattern) (Semester-III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Figures to the right indicate full marks.*

Q1) Attempt any EIGHT of the following. (out of Ten)

[8×2=16]

- a) What is Graph?
- b) What is stack underflow?
- c) What is self referential structure?
- d) Differentiate Array and Structure.
- e) What is Ancestor of Node?
- f) What is pointer to pointer?
- g) What is circular queue?
- h) List out different types of tree.
- i) What is Primitive data structure?
- j) What is sorting?

Q2) Attempt any four of the following. (Out of Five)

[4×4=16]

- a) What is stack? Explain different operations used in stack.
- b) Write a function to search the element from array using binary search.
- c) Explain different types of asymptotic notation in detail.
- d) What is double ended queue? Explain it with an example.
- e) Explain the concept of sorting and list the various sorting methods.

P.T.O.

Q3) Attempt any Four of the following. (Out of Five)

[4×4=16]

- Explain BFS traversing technique with an example.
- Write a function to reverse a singly linked list.
- Explain How graphs are stored using adjacency lists?
- What Operations we can perform on BT and BST?
- “Describe the stack-based algorithm used to transform an infix expression into its corresponding postfix form”.

Q4) Attempt any four of the following: (out of Five)

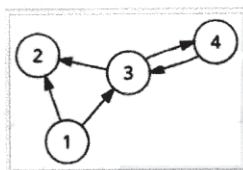
[4×4=16]

- Construct Binary search tree of following data: RAM, SITA, AMIT, JOEL, IVAN, ASHA.
- Write a function to remove given node from singly linked list and add it at the given position in singly linked list.
- Insert the following elements into a BST and draw the tree:
50, 30, 70, 20, 40, 60, 80
- Define recursive functions that will traverse a tree using the three traversal methods: inorder, preorder, and postorder.
- Sort the following data by using quick sort. 10, 5, 75, 62, 49, 58

Q5) Write any two of the following: (Out of three)

[2×3=6]

- Construct an AVL tree by inserting:
15, 10, 20, 8, 12, 16, 25, 30.
- What is degree of vertex? Find indegree & out degree of following graph for each vertex



- Convert the following expression into prefix
 - $A+(B*(C+D))$
 - $(P-Q)/(R+S*T)$



Total No. of Questions :5]

SEAT No. :

PE3494

[Total No. of Pages : 2

[6527]-203

S.Y. B.Com.(Computer Application)

MJ-202-CCA-T: PHP

(NEP 2024 Credit Pattern) (Semester -III)

Time : 3 Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Figures to the right indicate full marks.*

Q1) Attempt any Eight of the following

[8x2=16]

- a) What is PHP?
- b) What is a cookie?
- c) How to declare a variable in PHP?
- d) Explain PHP implode () function.
- e) Explain \$_SERVER.
- f) Describe echo statement in PHP.
- g) What is the purpose of using prepared statements in MYSQL?
- h) What is use of array _slice () in PHP?
- i) What is the purpose of break statement?
- j) Explain difference between static and dynamic website.

Q2) Attempt any FOUR of the following.

[4x4=16]

- a) Differentiate between PHP constant and variable?
- b) What are the different types of arrays in PHP?
- c) Explain the syntax for each loop with example.
- d) Explain methods used to submit a form.
- e) What is a session in PHP? Explain it.

P.T.O.

Q3) Attempt any Four of the following. **[4×4=16]**

- a) List and explain MYSQL functions used in PHP.
- b) Explain the difference between client side scripting and server side scripting
- c) Write a PHP program to calculate the area of circle and a triangle.
- d) Write a note of relational operators in PHP.
- e) Explain Response and request objects in PHP.

Q4) Attempt any Four of the following. **[4×4=16]**

- a) Explain introspection in PHP.
- b) Explain function with default parameter in PHP using example.
- c) Write a PHP Program to display multiplication table of entered value.
- d) Write a PHP script to accept user's name and display in on next page.
- e) Explain any four PHP superglobals with examples.

Q5) Write a note on any two of the following **[2×3=6]**

- a) Continue Statement
- b) Class and object
- c) Radio button and checkbox



Total No. of Questions : 5]

SEAT No. :

PE1185

[Total No. of Pages : 2

[6527]-301

**S.Y.B.B.A. (Computer Application)
CA - 301 : DIGITAL MARKETING
(2019 CBCS Pattern) (Semester - III)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Neat diagram must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*

Q1) Attempt any eight of the following:

[8×2=16]

- a) What is Internet marketing?
- b) Define Cost budgeting.
- c) What is Resource planning?
- d) What is Blogging?
- e) What is CRM?
- f) What is upload and download?
- g) Name the tools of social media marketing.
- h) What is web analytics?
- i) What is Mobile Marketing?
- j) What is Google AdWords?

P.T.O.

Q2) Attempt any Four of the following:

[4×4=16]

- a) Explain the SWOT Analysis?
- b) Write phases in content management lifecycle?
- c) What is Target Group Analysis?
- d) What are personal marketing and video marketing?
- e) Write advantages of E-mail marketing?

Q3) Attempt any Four of the following:

[4×4=16]

- a) How do you create Facebook Page?
- b) Write 5 D's of digital marketing?
- c) What is social media marketing?
- d) What is difference between SEO & SEM.
- e) Explain digital marketing and list its advantages.

Q4) Attempt any Four of the following:

[4×4=16]

- a) What is SEO Content?
- b) Describe the steps to do Cost Control.
- c) Write the difference between Digital Marketing and Traditional Marketing.
- d) Write CRM platform in detail?
- e) Which are the SMART goals?

Q5) Write a short note on Any Two of the following.

[2×3=6]

- a) KPI
- b) Target audience
- c) Pay-Per-Click



Total No. of Questions : 5]

SEAT No. :

PE1186

[Total No. of Pages : 2

[6527]-302

S.Y.B.B.A. (Computer Application)

CA - 302 : DATA STRUCTURE

(2019 Pattern) (Semester - III)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Figures to the right indicate full marks.*

Q1) Attempt any EIGHT of the following. (Out of Ten)

[8×2=16]

- a) What is graph? What are the different types of graph?
- b) What are the types of linked list?
- c) What are the applications of stack?
- d) What is Non-Primitive data structure?
- e) List the different sorting Techniques.
- f) What is Self-Referential structure?
- g) What is Ancestor of Node?
- h) What is reverse polish notation?
- i) What is Tree?
- j) Define node structure of doubly linked list.

Q2) Attempt any Four of the following.(Out of Five)

[4×4=16]

- a) Explain selection sort technique with an example.
- b) What is stack? Explain different operations used in stack.
- c) What are the different asymptotic notations? Explain.
- d) Explain Tree Traversal techniques with example.
- e) Explain BFS with example.

P.T.O.

Q3) Attempt any Four of the following.(Out of Five)

[4×4=16]

- Write a function to insert an element into a queue, in which the queue is implemented as an array.
- Write a function to delete a node at the end of doubly linked list.
- Write a function to check whether a given string is palindrome or not. (Use Stack)
- Write a recursive function to traverse a tree by using inorder (), preorder () and postorder traversing functions.
- Write a function to insert a node in BST.

Q4) Attempt any Four of the following. (out of Five)

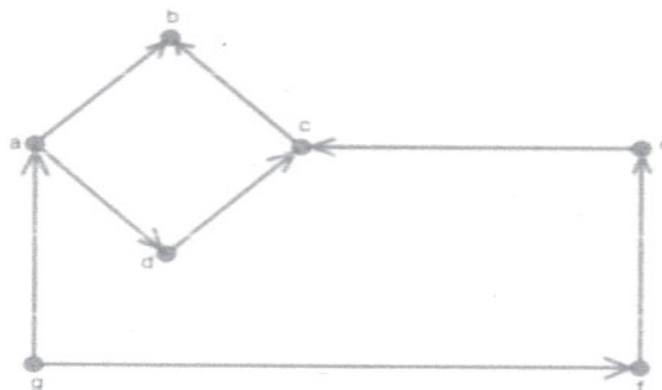
[4×4=16]

- Sort the following data by using insertion sort. 28, 9, 23, 4, 15, 3
- Sort the following array using Selection Sort: [27,11,13,37,17].
- Construct an AVL tree of following data. 20, 10, 30, 5, 15, 25, 35, 13, 17
- Explain Priority Queue with example.
- Write a C-program to display a linked list in Reverse order.

Q5) Write any two of the following: (Out of three)

[2×3=6]

- Convert the following expressions into postfix
 - $(A + B) * C - D$
 - $A + B * C - D/E * F$
- Define the following terms
 - Cyclic Graph
 - Parent node
 - Complete binary tree
- What is degree of vertex? Find in degree & out degree of following graph for each vertex.



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Total No. of Questions : 5]

SEAT No. :

PE1187

[Total No. of Pages : 2

[6527]-303

S.Y.B.B.A (C.A.)

**CA-303 : SOFTWARE ENGINEERING
(2019 CBCS Pattern) (Semester - III)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Neat labeled diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*

Q1) Attempt any eight of the following:

[8×2=16]

- a) List any two characteristics of good software.
- b) What is the purpose of feasibility study?
- c) What do you mean by software maintenance? What is SRS?
- d) Define an Entity.
- e) What is Pseudocode?
- f) State the principles of Software testing.
- g) What is the role of a software tester?
- h) What is prototype?
- i) What is the difference between verification and validation?
- j) What are functional and non-functional requirements?

Q2) Attempt any four of the following:

[4×4=16]

- a) Explain the concept of prototyping in software development.
- b) Differentiate between White Box and Black-Box testing.
- c) Explain the phases of the Software Development Life Cycle (SDLC).
- d) Explain fact finding methods in brief.
- e) What are the advantages and disadvantages of the Spiral Model?

Q3) Attempt any four of the following:

[4×4=16]

- a) Draw and explain a Decision Tree that predicts whether a student will pass or fail based on study hours, class attendance, and previous performance.
 - i) Study Hours (More/Less)
 - ii) Class Attendance (Regular/Irregular)
 - iii) Previous Performance (Good/Poor)

P.T.O.

Condition 1 : If the student studies more, check their class attendance:

- i) If attendance is regular, the student will pass.
- ii) If attendance is irregular, the student will fail.

Condition 2 : If the student studies less, check their previous performance:

- i) If the previous performance is good, the student will pass.
- ii) If the previous performance is poor, the student will fail.
- b) Explain requirement elaboration in detail.
- c) Draw first level DFD for customer order system.
- d) What is Decision Table? Need of Decision table.
- e) Draw FDD for Employee self service System.

Q4) Attempt any four of the following: [4×4=16]

- a) A university wants to decide whether a student is eligible for a scholarship based on the following criteria:
 - i) GPA (≥ 3.5 is high, < 3.5 is low)
 - ii) Family Income ($\geq \$50,000$ is high, $< \$50,000$ is low)
 - iii) Extracurricular Activities (Yes/No)The scholarship decision is based on the following rules:
 - i) If the GPA is high, the student gets the scholarship.
 - ii) If the GPA is low, check the family income.If income is low and the student is involved in extracurricular activities, the student gets the scholarship.
Otherwise, the student does not get the scholarship.
Draw a Decision Table that represents this information.
- b) Differentiate between forward and reverse engineering.
- c) Explain elements of Data flow diagrams.
- d) Differentiate between functional requirements and non-functional requirements with suitable examples.

Q5) Write a short note on any two of the following. [2×3=6]

- a) Feasibility study
- b) Spiral model
- c) System testing

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Total No. of Questions :5]

SEAT No. :

[Total No. of Pages : 2

PE1188

[6527]-304

S.Y. B.B.A.(C.A.)

**CA-304 : ANGULAR JS
(2019 Pattern) (Semester -III)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Neat diagram must be drawn wherever necessary*
- 3) *Figures to the right indicate full marks.*

Q1) Answer the following (any EIGHT)

[8×2=16]

- a) What is SPA?
- b) What is AngularJs?
- c) Explain Two- way data binding.
- d) Explain ng- click.
- e) What is Controller?
- f) What is module?
- g) What is AJAX?
- h) Explain uppercase filter.
- i) What is Dependency Injection?
- j) Explain \$http Services.

Q2) Attempt any FOUR of the following. (out of Five)

[4×4=16]

- a) Write an AngularJS script for addition of two numbers using ng-init.
- b) Using angular js Create a SPA that show Syllabus content of all subjects OfSY BBA (CA) (use ng- view)
- c) What are different CSS classes used by AngularJs
- d) Distinguish between factory, service and provider.
- e) What are the advantages of AngularJs.

P.T.O.

Q3) Attempt any Four of the following. (out of Five) **[4×4=16]**

- a) Write a Program to display name, qualification and address using MVCArchitecture
- b) Write an AngularJs script to search student name according to the character typed and display details (use array and filter).
- c) Explain built -in Services of AngularJS.
- d) Explain scope hierarchy in detail.
- e) What are the most common directives used in AngularJS Applications.

Q4) Attempt any Four of the following. (out of Five) **[4×4=16]**

- a) Create a angular JS Application that greet the User (Use \$timeout Service)
- b) Explain the MVC Architecture.
- c) Explain life cycle of a Module
- d) Explain different form Controller Properties in AngularJS.
- e) Explain difference between AngularJS and javascript.

Q5) Write a short note on any two (out of Three) **[2×3=6]**

- a) Custom validation.
- b) AngularJS Expressions
- c) Customer Filter



Total No. of Questions :5]

SEAT No. :

PE1189

[Total No. of Pages : 2

[6527]-305

S.Y. B.B.A. (Computer Application)

CA- 304: PHP

(2019 CBCS Pattern) (Semester -III)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Neat diagrams must be drawn wherever necessary*
- 3) *Figures to the right indicate full marks.*

Q1) Attempt any EIGHT of the following (Out of Ten).

[8×2=16]

- a) What is difference between “echo”and “print”?
- b) What does the unset () function mean?
- c) What is cookie?
- d) What is use of array- slice () in PHP?
- e) Explain PHP explode () function.
- f) List the types of array.
- g) What does PEAR stand for?
- h) What is validation?
- i) What is \$_SESSION in PHP?
- j) What is the purpose of break statement?

Q2) Attempt any FOUR of the following. (out of Five)

[4×4=16]

- a) Explain the concept of sticky form with suitable example.
- b) Write the functions performed by a web browser.
- c) Write a PHP Program to display reverse of a string
- d) What is the difference between a while loop and do while loop in PHP.
- e) Create a HTML form that accept user email. Write a PHP program to check whether user email address contain @ symbol or not. Display proper message.

P.T.O.

Q3) Attempt any Four of the following. (out of Five) [4×4=16]

- a) How inheritance is implemented in PHP? Explain using example
- b) Write a code in PHP which accepts two strings from user and displays them after concatenation.
- c) List and explain MYSQL functions used in PHP.
- d) Write PHP script to demonstrate the concept of introspection for examining object (Using any 3 predefined functions).
- e) What is the difference between GET and POST method?

Q4) Attempt any Four of the following. (out of Five) [4×4=16]

- a) Explain multidimensional array in PHP with example.
- b) Explain function with default parameter in PHP using example.
- c) Write a PHP Program to check whether given year is leap year or not.
- d) What is variable in PHP? Explain its scope with example.
- e) Write a PHP Program to find the sum of digit of a given number.

Q5) Write a short note on any two of the following (out of Three) [2×3=6]

- a) List Advantages of PHP.
- b) Assignment operators in PHP
- c) Superglobals in PHP



Total No. of Questions : 5]

SEAT No. :

PE-1190

[Total No. of Pages : 2

[6527]-306
S.Y.B.B.A. (Computer Application)
CA-305: BIG DATA
(2019 Pattern) (CBCS) (Semester - III)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) All questions are compulsory.
- 2) Figures to the right indicate full marks.

Q1) Attempt any EIGHT of the following.

[8 × 2 = 16]

- a) What is the statistical Inference?
- b) What is the supervised machine learning?
- c) What is the data visualization?
- d) What is WERA?
- e) What is Velocity?
- f) Define positive Regression?
- g) Define SVM.
- h) What is a Perfect Positive Correlation?
- i) What is meant by Data Manipulation?
- j) What is the data science?

Q2) Attempt any FOUR of the following.

[4 × 4 = 16]

- a) Explain probability distribution modelling.
- b) State Advantages and Disadvantages of EM Algorithm
- c) Explain with example types of Digital data.
- d) Explain the needs of Data analytics.
- e) Explain Pipe Operator? With example

P.T.O.

Q3) Attempt any FOUR of the following.

[4 × 4 = 16]

- a) Write a program to create an array, passing in a vector of values and a vector of dimensions. Also, provide names for each dimension.
- b) Write an R Program to calculate Decimals into binary of a given number
- c) What is the Histograms? Explain with an example in R.
- d) Write the short note on: linear regression.
- e) Naive Bayes with the help of example

Q4) Attempt any FOUR of the following.

[4 × 4 = 16]

- a) Write in detail: Apriori algorithm with example?
- b) Explain the term Matrix & List. Write an R program to convert a given matrix to a list and print the list in ascending order.
- c) Write an R program to create a data frame using two given vectors and display the duplicated elements and unique rows of the said data frame.
- d) Write an R program to display Bar Char for sales per month take atleast six month of data.
- e) Explain the Screen layout of R Studio with a diagram.

Q5) Write a short note on any TWO of the following.

[2 × 3 = 6]

- a) Data Manipulation
- b) Predictive Analytics
- c) Root Node



Total No. of Questions : 5]

SEAT No. :

PE-1191

[Total No. of Pages : 2

[6527]-307

S.Y.B.B.A. (Computer Application)

CA-305: BLOCK CHAIN

(2019 Pattern) (Semester - III)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Attempt any EIGHT of the following.

[8 × 2 = 16]

- a) Define Cryptography.
- b) What is Hashing?
- c) What is Proof of-Work?
- d) Define Wallet.
- e) Define Digital Signature.
- f) What is Digital Token?
- g) What is Double Spending?
- h) What is Hyperledger?
- i) Define Chaincode.
- j) Define Mist.

Q2) Attempt any FOUR of the following.

[4 × 4 = 16]

- a) Explain life cycle of Blockchain.
- b) Write a blockchain application in JavaScript for the creation of Transaction block for the account holder with name NDB.
- c) Differentiate between private key and public key.
- d) Write an Ethereum application in JavaScript to transfer currency from one account to another account.
- e) Explain Byzantine Fault Tolerance (pBFT) and any two advantages.

P.T.O.

Q3) Attempt any FOUR of the following.

[4 × 4 = 16]

- a) Explain Security in blockchain with DDos example.
- b) Explain Smart Contract and Consensus Algorithm.
- c) Explain Web3 in details.
- d) Write a solidity program for the implementation of looping statement.
- e) Write a blockchain application in JavaScript to create a block by using hyperledger fabric.

Q4) Attempt any FOUR of the following. (out of five)

[4 × 4 = 16]

- a) Explain transaction and define its structure with example
- b) Explain Actors of Blockchain with example.
- c) Explain and Design issue Cryptocurrency.
- d) What is Membership service provider explain with example.
- e) How does Blockchain Work?

Q5) Write a short note on any TWO of the following.

[2 × 3 = 6]

- a) State limitations of Blockchain.
- b) Write a solidity program to display “Hello welcome to NDB World”.
- c) What is Hash function explain hash value with a example.



Total No. of Questions : 5]

SEAT No. :

PE1192

[Total No. of Pages : 2

[6527]-401

S.Y. B.B.A. (C.A)

CA - 401 : NETWORKING

(CBCS 2019 Pattern) (Semester - IV)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Neat diagrams must be drawn wherever necessary.*

Q1) Attempt any eight of the following:

[8×2=16]

- a) Define the term “Computer Network”.
- b) What is a subnet mask and how is it used?
- c) What is firewall?
- d) Explain the concept of bandwidth in networking?
- e) Differentiate between LAN and WAN.
- f) Explain the concept of gateway in Networking.
- g) What is Hub?
- h) What is infrared?
- i) What is protocol?
- j) What is unguided media?

P.T.O.

Q2) Attempt any Four of the following:

[4×4=16]

- a) What is Bluetooth? Explain it's architecture.
- b) Draw Tcp/IP model and state the functions of each layer.
- c) What are the applications of computer networks?
- d) Distinguish between symmetric and asymmetric cryptography.
- e) Define bridge. Explain the types of bridges.

Q3) Attempt any Four of the following:

[4×4=16]

- a) What are different modes of communication? Explain any one in detail.
- b) What is the difference between substitution cipher and transposition cipher?
- c) What are repeaters? Define different types of repeaters.
- d) What are different propagation methods? Explain any one.
- e) Explain functions of each layer of ISO - OSI reference model.

Q4) Attempt any Four of the following:

[4×4=16]

- a) What is attack? Explain various types of attacks.
- b) Define Computer Network? Explain goals of Computer Network.
- c) What is steganography? Explain it's different techniques.
- d) Explain Radio-waves as a wireless transmission.
- e) Differentiate between Server Based LANs and peer to peer LANs.

Q5) Write a short note on any Two

[2×3=6]

- a) Router
- b) Line-of- sight- propagation
- c) Protocol standards



Total No. of Questions : 5]

SEAT No. :

PE1193

[6527]-402

[Total No. of Pages : 2

S.Y.B.B.A. (Computer Application)

**CA-402 : OBJECT ORIENTED CONCEPTS THROUGH CPP
(2019 Pattern) (Semester - IV)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Figures to the right indicate full marks.*

Q1) Attempt any Eight of the following. (Out of Ten)

[8×2=16]

- a) List the operators which cannot be overloaded in C++.
- b) Define abstract class.
- c) List Types of Inheritance.
- d) List the memory management operators in C++.
- e) Define inline function.
- f) What function overloading?
- g) Define a class and an object in C++.
- h) What is get() and put() function?
- i) Define Destructor.
- j) What is encapsulation?

Q2) Attempt any Four of the following. (Out of Five)

[4×4=16]

- a) Explain the scope resolution operator in C++ with example.
- b) What are manipulators in C++? Give an example.
- c) What is friend function? Explain with example.
- d) What are the two ways of defining member functions? Explain any one with suitable example.
- e) What is operator overloading? Explain with example.

P.T.O.

Q3) Attempt any Four of the following. (Out of Five)

[4×4=16]

- a) Explain Multilevel Inheritance with example.
- b) Explain the use of a static member function in C++ with an example.
- c) What is a file? Explain use of any four file opening modes.
- d) Write a program to Overload Unary Minus '-' operator.
- e) Write a C++ program to find area of rectangle and square using function overloading.

Q4) Attempt any Four of the following. (Out of Five)

[4×4=16]

- a) Explain the concept of virtual base class in C++ with an example.
- b) What is constructor? Explain parameterized constructor with example.
- c) Design two base classes Student (S_id, Name, Class) and Competition (C_id, Cname). Derive a class Stud_Comp (Rank) from it. Write a program to Accept information and Display student details in the ascending order of Rank of a specified competition. (use array of objects)
- d) Create a C++ program to modify contents of integer array using call by reference.
- e) Write a C++ program to accept Worker information Worker_Name, No_of_Hours_worked, Pay_Rate and Salary. Write necessary functions to calculate and display the salary pf Worker. (Use default value for Pay_Rate).

Q5) Write a short note on any two of the following : (Out of three)

[2×3=6]

- a) 'this' Pointer
- b) Virtual function
- c) Exception handling



Total No. of Questions : 5]

SEAT No. :

PE1194

[Total No. of Pages : 2

[6527]-403

S.Y.B.B.A (C.A.)

**CA-403 : OPERATING SYSTEM
(2019 CBCS Pattern) (Semester - IV)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Attempt any eight of the following:

[8×2=16]

- a) What is meant by multiprocessing system?
- b) Define a safe state
- c) What is meant by Deadlock?
- d) What does FIFO and MFU stand for?
- e) What is starvation?
- f) Define system program.
- g) Define Burst Time.
- h) What is process?
- i) What do you mean by Seek Time in Disk Scheduling?
- j) List any four characteristics of operating system.

Q2) Attempt any four of the following:

[4×4=16]

- a) Explain Operating System Structure.
- b) Explain Process Control Block (PCB) with diagram.
- c) What is virtual machine? Explain its benefits.
- d) Explain briefly process scheduling.
- e) Consider the following set of processes which all Arrival time 0 and burst time each process is given below:

Processes	Burst Time
P1	5
P2	24
P3	16
P4	10
P5	3

Calculate average turnaround time and average waiting time for all set of processes using FCFS algorithm.

P.T.O.

Q3) Attempt any four of the following: [4×4=16]

- a) List and explain services provided by the operating system.
- b) What is Fragmentation? Explain types of it in detail.
- c) What is a deadlock? How can deadlock be avoided?
- d) Explain Resource Allocation Graph in detail.
- e) Consider the following page reference string:
1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 3
The number of Frames is 3.
calculate page Fault for the following page replacement schemes:
 - i) FIFO
 - ii) LRU

Q4) Attempt any four of the following: [4×4=16]

- a) Consider the following set of processes:

Process	CPU Burst Time (in Milliseconds)
P1	30
P2	6
P3	8

Given Time Quantum is 5 milliseconds.

Calculate average turnaround time and average waiting time using Round Robin Algorithm.

- b) Describe I/O Hardware with its type of I/O devices.
- c) Explain file attributes in detail.
- d) Define the terms:
 - i) Logical Address
 - ii) Physical Address
- e) Assume there are total 0-199 tracks that are present on each surface of the disk. If request queue is 55, 58, 39, 19, 90, 160, 150, 38, 184 initial position of the head is 100. Apply FCFS disk scheduling algorithm & calculate total head Movement.

Q5) Write a short note on any two of the following: [2×3=6]

- a) Explain semaphores and its types in detail.
- b) Define Context switch.
- c) Explain Indexed Allocation briefly.

* * *

Total No. of Questions :5]

SEAT No. :

PE1195

[Total No. of Pages : 2

[6527]-404

S.Y. B.B.A.(Computer Application)

CA-404 : NODE JS

(2019 CBCS Pattern) (Semester -IV)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Figures to the right indicate full marks.*

Q1) Answer the following. (Any Eight)

[8×2=16]

- a) Which type of applications do we build using NodeJS?
- b) What is the use of Registry?
- c) List any four core modules of NodeJS.
- d) What is the syntax for installing packages globally using npm?
- e) What is the syntax for creating a basic web server using NodeJS?
- f) For what require () is used in NodeJS?
- g) What is the Node.js process model?
- h) Explain the concept of module. exports in Node. js?
- i) What is the purpose of the File System Module in NodeJS?
- j) What is NPM?

Q2) Answer the following. (Any Four)

[4×4=16]

- a) Write a program in Node Js to create a simple user login system.
- b) Write a Node. js program that connects to a MySQL database using the mysql module and print fetched data to the console.
- c) What is event driven programming ? Give an example.
- d) Explain difference between blocking and non- blocking in NodeJS.
- e) What is a listener? Differentiate between remove Listener () and remove All Listener()?

P.T.O.

Q3) Answer the following. (Any Four) [4×4=16]

- a) Explain the use of Buffer and How to create Buffer.
- b) Write a NodeJS program which will convert the output “ SY BBA-CA” into upper- case and lower-case.
- c) Differentiate between static and dynamic websites.
- d) What is a synchronous and asynchronous approach?
- e) Write a Node. js program that demonstrates the Event Emitter class.

Q4) Answer the following. (Any Four) [4×4=16]

- a) Write a NodeJS Program to create an employee DB and emp table (eid, name, salary) in mysql.
- b) Write a NodeJs code to read filename and to return the content of file on terminal.
- c) How to create a Buffer? Write a code to perform the following operations on Buffer data -Concat, slice.
- d) Write a NodeJs program to count the occurrence of a given word in a file and display the count on Console.
- e) How to add dependencies into package.json file?

Q5) Answer the following. (Any Two) [2×3=6]

- a) Explain Anonymous function with an example.
- b) Explain REPL in detail.
- c) Explain working of write Head ()



Total No. of Questions :5]

SEAT No. :

PE1196

[Total No. of Pages : 2

[6527]-405

S.Y. B.B.A.(Computer Application)

CA-404 : ADVANCE PHP

(2019 Pattern) (Semester -IV)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Figures to the right indicate full marks.*

Q1) Attempt the following (any eight)

[8×2=16]

- a) What is an abstract class?
- b) What is the \$-SERVER variable?
- c) Which are XML element.
- d) What are different technology used in AJAX?
- e) What is Web services?
- f) What is content Management System?
- g) What is Serialization?
- h) Define UDDI.
- i) What is the PHP Framework?
- j) Define template of object oriented.

Q2) Attempt the following (any Four)

[4×4=16]

- a) What is Polymorphism. Explain with example.
- b) What is serialization. Explain with example.
- c) Write challenges of web services.
- d) What is SOAP? Explain in details.
- e) Create a form to accept employee detail & display it in next page (Use Stickyform Concept)

P.T.O.

Q3) Attempt the following (Any Four)

[4×4=16]

- a) Explain with Example How to connect Database using PHP And AJAX.
- b) Explain the Features of Joomla
- c) Explain the XML Parser and its type.
- d) Write PHP Program Which implements Ajax for the addition of two number.
- e) Write AJAX Program to Print movie details by selecting an Actor's
Create table Movie and ACTOR as follows with 1:M
Cardinality.MOVIE (mno, mname, release year) and ACTOR
(atno, atname).

Q4) Attempt any four of the following.

[4×4=16]

- a) What is Inheritance? Explain with Suitable example.
- b) Write a PHP Script to display server information in table format
(use \$ _SERVER)
- c) Create a XML file that gives details of books available in “ABC
Bookstore” from the following categories
i) Technical ii) Cooking iii) YOGA.
- d) Create an abstract class shape with method area () and volume (). Derive
two classes rectangle (length, breadth) Circle (radius). Calculate area and
volume of all (use method overriding).
- e) Explain setting Response Headers.

Q5) Write a short note on any two of the following :-

[2×3=6]

- a) WSDL
- b) Interface
- c) XML HTTP Request object.



Total No. of Questions : 5]

SEAT No. :

PE-1197

[Total No. of Pages : 2

[6527]-501
T.Y. B.B.A. (C.A.)
CA-501: CYBER SECURITY
(2019 Pattern) (Semester - V)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Attempt any Eight of the following:

[8 × 2 = 16]

- a) What is Offline cyber stalking?
- b) Define Keyloggers.
- c) Define attack vector?
- d) What is Phishing?
- e) Define salami attack.
- f) What is Steganography?
- g) What is Virus?
- h) What is reconnaissance?
- i) What is social engineering?
- j) What is Botnet?

Q2) Attempt any Four of the following:

[4 × 4 = 16]

- a) What is CIA? Discuss three concept of CIA model.
- b) What is SQL injection and what are the different countermeasures to Prevent the attack?
- c) What is the difference between proxy server and anonymizer?
- d) What are the challenges to Indian Law and cybercrime scenario in India?
- e) Explain different types of credit card frauds.

P.T.O.

Q3) Attempt any Four of the following:

[4 × 4 = 16]

- a) Discuss IPR Issues.
- b) What is the role of digital forensics?
- c) Define virus. Discuss the types of viruses
- d) What are the various types of cybercrimes that impacted organization?
- e) Prepare a case study with its implication on “financial frauds in cyber domain”.

Q4) Attempt any Four of the following:

[4 × 4 = 16]

- a) Discuss various password cracking techniques.
- b) Explain the best practices with use of social media marketing tools.
- c) Describe five categories of cybercrime.
- d) Discuss different types of active attack and passive attack?
- e) Which point to be considered to protect data from cyber-attack?

Q5) Write short notes on any Two of the following:

[2 × 3 = 6]

- a) Spywares
- b) DoS attacks
- c) Indian IT act



Total No. of Questions : 5]

SEAT No. :

PE-1198

[Total No. of Pages : 2

[6527]-502
T.Y. B.B.A. (C.A.)
CA-502: OBJECT ORIENTED SOFTWARE
ENGINEERING
(2019 Pattern) (CBCS) (Semester - V)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*

Q1) Attempt any FIVE of the following (Any five out of Seven): [5 × 2 = 10]

- a) Define Joining
- b) What is meant by Concurrency?
- c) What is the use of section 9 in SRS format?
- d) Consider a single object “Book” and draw object diagram with possible attributes.
- e) Define Tagged values
- f) Write down the purpose of the object diagram.
- g) What is SDLC?

Q2) Attempt any FOUR of the following (Any Four Out of Five): [4 × 4= 16]

- a) What is object orientation? State various reasons for why object orientation.
- b) Define sequence diagram. Explain different kind of it's notations.
- c) What is SRS? Explain types of SRS specification.
- d) Draw state chart diagram for online Railway Reservation System.
- e) What is risk management in project management.

P.T.O.

Q3) Attempt any FOUR of the following (Out of Five) : [4 × 4 = 16]

- a) Define the following terms
 - i) Transition
 - ii) Concurrency
 - iii) Actor
 - iv) Navigation.
- b) How to identify the element of an object model.
- c) Explain the concept of Aggregation with example.
- d) What is meant by Iterative development. State its various advantages.
- e) Define sequence diagram. Explain different kind of it's notations.

Q4) Attempt any FOUR of the following (Out of Five) : [4 × 4 = 16]

- a) Define thing. Explain type of things in UML.
- b) Draw a collaboration diagram for ATM system.
- c) What is package? Explain it with import and export stereotypes.
- d) Explain UP phase with the help of diagram.
- e) Define Relationship. Explain different kinds of relationship.

Q5) Attempt Any two from the following : [2 × 6 = 12]

Construct a design element for point of the sale terminal management system that can be used for buying and selling of goods in the retail shop. When the customer arrives at the post check point with the items to purchase, the cashier records each item price and add the item information to the running sales transaction. The description and price of the current items are displayed. On completion of the item entry the cashier informs the sales totals and tax to the customer. The customer chooses payment type (cash, cheque, credit/debit) After the payment is made the system generates a receipt and automatically updates the inventory, the cashier handovers the receipt to the customer.

Consider above situation draw the following UML diagram.

- a) Use case diagram.
- b) Activity diagram.
- c) Class diagram.



Total No. of Questions : 5]

SEAT No. :

PE-3165

[Total No. of Pages : 2

[6527]-503

T.Y.B.B.A. (Computer Application)

CA 503 : CORE JAVA

(2019 Pattern) (CBCS) (Semester - V)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Neat diagrams must be drawn wherever necessary.*
- 2) *Figures to the right indicate full marks.*
- 3) *All questions are compulsory.*

Q1) Attempt any EIGHT of the following (Out of Ten).

[8 × 2 = 16]

- a) List any two restrictions for applet.
- b) What is access specifiers? List them.
- c) State the purpose of throw keyword.
- d) Define class and object.
- e) How to print “Welcome” message before main method?
- f) What are differences between String and StringBuffer class?
- g) State the use of jar file.
- h) List the three different uses of final keyword.
- i) Why we set environment variable in Java
- j) What is Swing?

Q2) Attempt any FOUR of the following (Out of Five)

[4 × 4 = 16]

- a) What is Interface'? Why are they used in Java? Explain.
- b) What is Super Keyword? Explain the use of super keyword with suitable example.
- c) Define a class person(pid,pname,age,gender). Define Default and parameterized constructor. Overload the constructor. Accept the 5 person details and display it.(use this keyword)
- d) What is Applet? Explain life cycle of Applet.
- e) Create abstract class Shape with abstract method area().Write a Java program to calculate are of Rectangle and Triangle.(Inherit Shape class in classes Rectangle and Triangle)

P.T.O.

Q3) Attempt any FOUR of the following [Out of Five] [4 × 4 = 16]

- a) What is Data Type? Explain types of Data Types used in Java?
- b) Write a java program to display alternate character from a given string.
- c) What is Inheritance? Explain any one type with example.
- d) Explain in brief delegation event model for handling events.
- e) Write a java program to calculate sum of digits of a given number using recursion.

Q4) Attempt any FOUR of the following [Out of Five] [4 × 4 = 16]

- a) What is Exception? Explain its keyword with example.
- b) What is AWT? How to add any component on frame using AWT?
- c) Write a java Program to accept the details of 5 employees (Eno, Ename, Salary) and display it onto the JTable.
- d) Write a Java program to accept string from user, if its length is less than 7, then throw user defined exception “Invalid String” otherwise display the string in upper case.
- e) Explain any four methods of file class.

Q5) Write short note on any two: [Out of Three] [2 × 3 = 6]

- a) Package in Java.
- b) Static Keyword
- c) Runtime polymorphism using interface



Total No. of Questions : 5]

SEAT No. :

PE-3166

[Total No. of Pages : 2

[6527]-504

T.Y. B.B.A. (Computer Application)

CA -504 : MONGO DB

(2019 Pattern) (Semester - V)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*

Q1) Answer the following: (Any 8).

[8 × 2 = 16]

- a) Define NoSQL databases.
- b) What is the Column Family Database?
- c) Write a command to delete a collection, where the collection name is book.
- d) Define Horizontal Scaling.
- e) What is the purpose of “_id”?
- f) What is the ‘mongostat’ command used for?
- g) What is Map-Reduce used for in MongoDB?
- h) Write the syntax of insertOne command.
- i) List any two features of MongoDB.
- j) What are ‘ancestors’ nodes in MongoDB?

Q2) Answer the following: (Any 4)

[4 × 4 = 16]

- a) Compare RDBMS Data Model and MongoDB Data Model
- b) Discuss challenges for Data Modeling in MongoDB.
- c) Draw and Explain MongoDB Production Architecture.
- d) Explain the different indexing reference methods in detail.
- e) Explain READ commands used in MongoDB.

P.T.O.

Q3) Answer the following: (Any 4) :

[4 × 4 = 16]

- a) Explain Key Value Pair Database in detail.
- b) Explain Geospatial Indexes.
- c) Explain 'Pipeline' with an example.
- d) Explain MongoDB Development Architecture.
- e) Explain commands to import and export data from and to in MongoDB?

Q4) Answer the following:

[16]

Write statement in MongoDB to do the following:

- a) Write a command to Create a 'Musician' collection of three documents with the following : **[4]**

fields:

name,

birth_year,

Album (more than 1 album may exist),

instruments

Write queries for the following:

- b) Display the name of musicians in descending order of their birth year. **[3]**
- c) Add one more album to the musician having id 3 **[3]**
- d) Insert a new field 'occupations' in the musician document having name 'A. R. Rahman'. **[3]**
- e) Give id and name of only those musicians who plays 2 instruments. **[3]**

Q5) Solve the following: (Any 2)

[2 × 3 = 6]

- a) Explain Monitoring at Server.
- b) Explain findOneAndUpdate Command.
- c) Explain Sparse Indexes.



Total No. of Questions : 5]

SEAT No. :

PE-3167

[Total No. of Pages : 2

[6527]-505

T.Y. B.B.A. (Computer Application)

CA -504 : PYTHON

(2019 Pattern) (Semester - V)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Attempt any eight of the following.

[8 × 2 = 16]

- a) Write any three functions of Math module
- b) What is the use of random () in a random module?
- c) How to create class and object in python?
- d) Name the free GUI libraries for python
- e) List any two common exceptions in Python.
- f) What is the use of the finally block?
- g) What is NumPy and why is it used?
- h) What is indentation in Python? Why is it important?
- i) What is a lambda (anonymous) function? Give example.
- j) What are string slicing operations? Give example

Q2) Attempt any four of the following.

[4 × 4 = 16]

- a) What is method overloading?
- b) Explain the label widget in tkinter with an example.
- c) Compare Pandas Series and DataFrame with examples.
- d) Explain different data types in Python with examples.
- e) Explain predefined and user defined functions with example

P.T.O.

Q3) Attempt any four of the following.

[4 × 4 = 16]

- a) Write a python program to create class which perform basic calculator operations.
- b) How does python static method work?
- c) Explain widget resizing in Tkinter.
- d) What is list? Explain list operations in Python.
- e) Write a python program to print a table of any number

Q4) Attempt any four of the following.

[4 × 4 = 16]

- a) Explain user defined functions with example
- b) Explain Frame widget with an example
- c) Write a Python GUI program to create a label and change the label font style (font name, bold, size) using tkinter module.
- d) How to define function in Python? Explain with suitable example.
- e) Write a Python program to check if a given key already exists in a dictionary. If Key exists replace with another key/value pair.

Q5) Write short note on any two.

[2 × 3 = 6]

- a) strftime () with its format codes.
- b) Polymorphism
- c) Steps to create and use a custom exception.



Total No. of Questions : 5]

SEAT No. :

PE-1199

[Total No. of Pages : 2

[6527]-601

T.Y. B.B.A. (C.A.)

**CA-601: RECENT TRENDS IN INFORMATION
TECHNOLOGY
(2019 Pattern) (Semester - VI)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Figures to the right indicate full marks.*

Q1) Attempt any EIGHT of the following (Out of TEN): **[8 × 2 = 16]**

- a) What is Data Mining?
- b) What is Spark?
- c) Define Data Frames.
- d) Define Search strategy.
- e) Which are the techniques of AI?
- f) What is RDD?
- g) Define Local Maximum
- h) Define Star schema
- i) What is meant by F-measure?
- j) Define Data Cleaning.

Q2) Attempt any FOUR of the following (Out of FIVE) : **[4 x 4= 16]**

- a) Explain the working of Spark with the help of its Architecture.
- b) Explain FP- Tree Algorithm
- c) How is Apache Spark different from Map Reduce?
- d) What are the features of spark?
- e) What are the major issues in Data Mining?

P.T.O.

Q3) Attempt any FOUR of the following (Out of FIVE) : [4 x 4 = 16]

- a) Explain Graph Mining.
- b) How do we create RDDs in Spark?
- c) Describe the applications of a Data warehouse.
- d) Discuss the architecture of Kafka.
- e) Explain the Components of Spark with a diagram

Q4) Attempt any FOUR of the following (Out of FIVE) : [4 x 4 = 16]

- a) What are OLTP and OLAP database systems?
- b) What is Executor Memory in a Spark application?
- c) What is AI? Explain with its applications.
- d) Elaborate the Spark Installation Steps.
- e) Why RDD needs in a Spark?

Q5) Write a short note on Any TWO of the following (Out of THREE) : [2 x 3 = 6]

- a) Spark SQL
- b) Ignorable Problem
- c) Depth-limited Search



Total No. of Questions : 5]

SEAT No. :

PE-1200

[Total No. of Pages : 2

[6527]-602
B.B.A.(C.A.)
CA-602: SOFTWARE TESTING
(2019 Pattern) (Semester - VI)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Neat diagram must be drawn wherever necessary.*
- 3) Figures to the right indicate full marks.*

Q1) Attempt any EIGHT of the following (Out of TEN): **[8 × 2 = 16]**

- a) Define Stubs and Drivers.
- b) What is test case?
- c) State the advantages of manual testing.
- d) What is test plan?
- e) What is software testing?
- f) Define validation Testing?
- g) What is Debugging?
- h) Define Big Bang Approach.
- i) Define term SQA.
- j) What is software metric?

Q2) Attempt any FOUR of the following (Out of FIVE) : **[4 x 4= 16]**

- a) Explain all testing principles in detail.
- b) State and explain difference between load and stress testing.
- c) Differentiate between alpha and beta testing.
- d) Explain testing of client-server architecture.
- e) Explain equivalence class partitioning

P.T.O.

Q3) Attempt any FOUR of the following (Out of FIVE) : [4 x 4 = 16]

- a) Explain testing life cycle with diagram.
- b) Explain qualities of good test case design.
- c) What is White-Box testing? Explain with its techniques.
- d) Explain objective and types of GUI.
- e) Explain Integration testing in details.

Q4) Attempt any FOUR of the following (Out of FIVE) : [4 x 4 = 16]

- a) Explain Load Runner testing tool.
- b) Explain J unit as a testing tool in detail.
- c) Explain Capability Maturity Model (CMM) in detail.
- d) Explain test case design in detail.
- e) Explain GQM (Goal- question-Metric Model)

Q5) Write a short note on Any TWO of the following (Out of THREE) : [2 x 3 = 6]

- a) Testing Vs Debugging.
- b) Gray-box testing.
- c) Win Runner.



Total No. of Questions : 5]

SEAT No. :

PE1201

[Total No. of Pages : 2

[6527]-603
T.Y.B.B.A. (C.A.)
CA-603 : ADVANCED JAVA
(2019 Pattern) (Semester - VI)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Neat diagrams must be drawn wherever necessary.*

Q1) Attempt any 8 of the following.

[8×2=16]

- a) What is thread?
- b) What is ResultSet?
- c) Name 2 types of servlets?
- d) What is hibernate?
- e) What is TCP/IP?
- f) Write down the syntax of sleep ()method.
- g) What is session?
- h) What is the use of init () method in servlet?
- i) What is scriptlet tag?
- j) List any 2 interfaces used in JDBC.

Q2) Attempt any four of the following.

[4×4=16]

- a) List and explain 4 types of JDBC drivers.
- b) Write down the difference between doGet () and doPost() methods.
- c) Explain servlet life cycle.
- d) List & explain implicit objects in JSP.
- e) What is Runnable interface? Explain its need with example.

P.T.O.

Q3) Attempt any four of the following.

[4×4=16]

- a) Explain thread priorities in detail.
- b) Explain 4 techniques of session tracking in servlet.
- c) Explain different methods of ResultSet.
- d) Write a JDBC program to insert record into student table having fields rollno, name and percentage.
- e) Write a servlet program to print “Hello Java”.

Q4) Attempt any four of the following.

[4×4=16]

- a) Explain applications of spring.
- b) Explain statement, Prepared statement and callableStatement interfaces in detail.
- c) Explain any 4 methods of connection interface.
- d) Write a multithreading program to display 100,99,98 1.
- e) Write a JSP program to display the details of student (rollno, name, address) in tabular format on browser.

Q5) Write a short note on any 2 of the following.

[2×3=6]

- a) Service () method.
- b) Thread synchronization.
- c) Hibernate-Mapping Types.

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Total No. of Questions : 5]

SEAT No. :

PE1202

[Total No. of Pages : 2

[6527]-604

**T.Y.B.B.A. (Computer Application)
CA-604 : ANDROID PROGRAMMING
(2019 Pattern) (CBCS) (Semester - VI)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Draw neat diagrams whenever necessary.*

Q1) Attempt the following (any 8):

[8×2=16]

- a) What is activity in Android?
- b) Define Android toast.
- c) How and where are layouts placed in Android?
- d) What is Context Menu?
- e) What is Adapter in Android?
- f) What is the use of resource ID in android?
- g) List any four basic controls in android.
- h) Describe the role of SQ Lite Database Open Helper in Android.
- i) Define Android.
- j) What is Geocoding in Android?

Q2) Attempt the following (any 4):

[4×4=16]

- a) What is Dalvik virtual Machine? Discuss any 2 key features.
- b) Explain the Activity Lifecycle in brief with diagram.
- c) Differentiate between Implicit Intent and Explicit Intent in android.
- d) Explain Layout in Android with example.
- e) Explain Date and Time Picker with its methods.

P.T.O.

Q3) Answer the following (any 4): **[4×4=16]**

- a) Explain about content providers in android.
- b) Create a linear layout for login page in android with its component properties.
- c) How to create Alert Dialog? Explain.
- d) Demonstrate the use of at least two controls with example.
- e) Explain worker thread with example.

Q4) Answer the following (any 4): **[4×4=16]**

- a) Create a simple Application, which read a positive number from the user, display the number is prime or not in another activity.
- b) What is view in Android? Differentiate between view & viewgroup in Android.
- c) What is cursor in SQ Lite? Explain with example.
- d) Define Google Map. How to change views in Google Maps? Explain with example.
- e) Explain the purpose of an adapter in Android and describe the steps involved in implementing a menu in an android application.

Q5) Answer the following (any 2): **[2×3=6]**

- a) Dialog Box
- b) Android JSON
- c) Notification



Total No. of Questions : 5]

SEAT No. :

PE1203

[Total No. of Pages : 2

[6527]-605

**T.Y.B.B.A. (Computer Application)
CA-604 : DOT NET FRAMEWORK
(2019 Pattern) (Semester - VI)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *All questions are compulsory.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right indicate full marks.*

Q1) Attempt any eight of the following.

[8×2=16]

- a) List any four common web controls.
- b) State any two advantages of .Net
- c) What is Event Driven Programming?
- d) Enlist concatenation operators in VB .NET
- e) Explain following Function?
 - i) MsgBox()
 - ii) InputBox()
- f) Explain the use of 'this' Keyword in C#.
- g) List properties of Array in C#.
- h) What is ADO .Net Dataset?
- i) Enlist any four data types used in .Net?
- j) State the difference between value type and reference type.

Q2) Attempt any four of the following.

[4×4=16]

- a) State and explain various control structures used in VB.Net.
- b) Explain ASP .NET page life cycle in detail.
- c) Explain message Box function in detail.
- d) What is connection object in ADO .net?
- e) Enlist and explain various objectives of .Net frameworks.

P.T.O.

Q3) Attempt any four of the following.

[4×4=16]

- a) Write a program in C# to reverse given number.
- b) Write program in C# to create function to find factorial of given number.
- c) Write a VB.NET program to check given number is palindrome or not.
- d) Write a VB.NET program to accept a number from input box and display multiplication table in list box.
- e) Write VB.NET program to accept the details of Employee (Eno, Ename, salary) display it in Data GridView.

Q4) Attempt any four of the following.

[4×4=16]

- a) Explain Validation Control in ASP.NET?
- b) Explain Architecture of Dot Net framework.
- c) Explain Common Type Systems (CTS) and Common Language Specification (CLS).
- d) Write a C# program to find length of string.
- e) Write a program to find prime numbers between 2 to 20.

Q5) Write a short note on any Two of the following.

[2×3=6]

- a) Method Overloading.
- b) Master page in ASP.Net
- c) Constructor and Destructor.

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