Punyashlok Ahilyadevi Holkar Solapur University,Solapur

BCA I Semester I

Logic Development using C

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1) Answer any four of the following (for 2 marks)

1) Define problem

2) Define logic

3) What is sequence logic?

4) What is selection logic?

5) What is iteration logic?

6) Define algorithm

7) Define flowchart

8) Define pseudo code

9) Differentiate between variable and constant

10) Define keyword

11) What is the use of typedef

12) Give the syntax of for loop

13) Give the syntax of switch statement

14) Define array

15) Define string.

16) What is character array?

17) Give the syntax and example of array Initialization.

18) What is the use of two dimensional array? Give example

19) What is implicit type casting?

20) What is explicit type casting?

21) Write a program to check a given number is EVEN or ODD.

22) write an algorithm to check a number is +ve or –ve.

23) Draw a flowchart to display greatest number from given three numbers.

24) Write a program to check a year is leap or not.

25) Write an algorithm to convert a digit into word.

2) Write short notes any two of the following (for 4 marks)

1) Explain the steps in solving the problem

2) Explain types of logic

3) What are the characteristics of algorithm?

4) What are the characteristics of flowchart?

5) Explain the features of algorithm.

6) Explain the features of flowchart.

7) Explain the symbols used in flowchart.

8) What are the characteristics of pseudo code?

9) Explain the features of pseudo code.

10) What is variable? Explain rules for variable declaration

11) Differentiate between while and do while loop

12) Explain unconditional branching statement.

13) What is iterative statement? How it is achieved in ‘C’ language?

14) Explain decision making statement used in ‘C’ language.

15) Explain if else ladder with example.

16) Write a program to display factorial of a number

17) Write an algorithm to check a given number is PRIME or not

18) Draw a flowchart to check a given number is ARMSTRONG or not

19) Write a program to display addition of 1 to n numbers

20) Write a program to display greatest & smallest number from array.

3) Answer any two of the following (for 4 marks)

1) Explain history of ‘C’ language

2) What are the characteristics of ‘C’ language

3) Explain structure of ‘C’ language

4) Explain ‘C’ tokens

5) What is an identifier? Explain rules for identifier.

6) Explain type casting.

7) Explain precedence and associativity of operators.

8) Explain types of control statements

9) What is the use of conditional operator

10) Explain jump statement with example.

11) Explain nested if else statement with example.

12) Write a program to display addition of two matrix.

13) Write a program to display diagonal elements of a matrix.

14) Write a program to display transpose of a matrix.

15) Write a program to display addition of elements of a matrix.

16) Write a program to display Fibonacci series.

17) Write an algorithm to check a given number is STRONG or not

18) Draw a flowchart to check a given number is PALINDROME or not

19) Write a program to display table of a given number

20) Write a program to display to search an element into array.

4) Answer any one of the following (for 8 marks)

1) Explain operators used in 'C' language.

2) Explain bitwise operators with example.

3) Explain types of control statements

4) Define Array. Explain types of array with memory allocation.

5) Explain string handling functions with example.

6) Write a program to display PRIME numbers between 1 to 100

7) Write a program to display PALINDROME numbers between 1 to 100

8) Write a program to display first ten PRIME numbers.

9) Write a program to display multiplication of two matrix

10) Create a menu driven program to perform string operation
1) String length 2) String Reverse 3) String Compare
use inbuilt string handling function.

Punyashlok Ahilyadevi Holkar Solapur University,Solapur

BCA I Semester I

Advanced Programming using C

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1) Answer any four of the following

1) Define function

2) Explain the need of a function.

3) Differentiate between library and user defined function

4) State the types of user defined function

5) What is local variable?

7) What is global variable?

8) What is static storage class? Give its importance.

9) What are the benefits to use extern keyword?

10) Differentiate between auto and static storage class.

11) What is the use of register keyword?

12) What are the features of using function?

13) Define pointer. Give the syntax.

14) State the functions used for dynamic memory allocation.

15) How we can release the memory allocated by malloc() function?

16) Explain the use of realloc() function?

17) Define structure. Give an example

18) Define union. Give an example.

19) What is self referential structure?

20) Differentiate between text file and binary file.

2) Write short notes any two of the following

1) Explain the steps required to include a user defined function in a program.

2) Differentiate between local and global variable with example.

3) What do you mean by recursion? Give example

4) Write a program to display factorial of a number using recursion

5) Write a program to display Fibonacci series using recursion

7) Differentiate between malloc() and calloc() function

8) Write a program to show passing structure to a function.

9) Explain nested structure with example.

10) Differentiate between structure and union.

11) What is macro? Give example

12) What do you mean by pre-processor?

3) Answer any two of the following

1) Differentiate between call by value and call by reference

2) Which operations we can perform on a pointer?

3) Explain pointer to pointer with example.

4) What is chain of pointer?

5) Explain double pointer with example.

7) What is generic pointer?

8) Explain the use of void keyword in ‘C’ language.

9) Differentiate between getchar() and putchar() function

10) What is file? Which operation we can perform on a file?

4) Answer any one of the following

1) Explain types of function with example.

2) What is storage class? Explain all storage classes with example.

3) Write a program to swapping of two numbers using call by value and call by reference

4) Explain array of structure with example.

5) Write a proram to accept and display information of 5 students (roll no,name, percentage). Display the name of a topper student .Use the concept array of object.

7) Write a program copy content of one file to another file.

8) Write a program to count number of characters, number of blank space, number of tabs, number of lines in file.

9) Write a proram to accept and display information of 5 employees (id ,name, salary). Display the name of a employee who paid highest salary .Use the concept array of object.

10) Write a program to display first 10 prime numbers using user defined function.

Punyashlok Ahilyadevi Holkar Solapur University,Solapur
Exam
B.C.A.-I (Sem-I) (New CBCS)(w.e.f. June 2019)
Subject: - Software Engineering-I

QUESTION BANK

Q. No.2)		Answer any four of the following
	1	What is System?
	2	What are elements of system?
	3	What is interface?
	4	What is Deterministic system?
	5	What is Probabilistic system?
	6	What is Open system?
	7	What is Closed system?
	8	What is TPS?
	9	What is System Analysis?
	10	Who is System Analyst?
	11	Definition of software engineering.
	12	What is System Development life cycle?
	13	What is model in SDLC?
	14	What is Feedback?
	15	What are different fact finding techniques?
	16	What is MIS?
	17	Draw diagram of SDLC.
	18	Write down any four Advantages of Waterfall Model.
	19	What are boundaries?
	20	Write down four phases in Spiral Model.
	21	Write down any four disadvantages of Spiral Model.
	22	What is Environment?
	23	Write down any four Disadvantages of Waterfall Model.
	24	What is RAD model?
	25	What is DSS?
	26	Write down any four Advantages of Prototype model.
	27	When Spiral Model should be followed?
	28	Write down any four disadvantages of Prototype model.
	29	Write down any four Advantages of Spiral Model.
	30	What is EIS?

Q. No.3)		**Write short notes on any two of the following**
	1	Explain System concepts.
	2	Explain Deterministic system and Probabilistic system.
	3	Explain Open system and Closed system.
	4	Explain System Analysis in detail.
	5	Explain Need of fact finding techniques.
	6	Explain RAD model.
	7	Explain different stages of the Software Development Life Cycle.
	8	Explain Characteristics of software
	9	Explain Prototyping Model in detail.
	10	Explain role of system analyst in software development.
Q. No.4)		**Answer any Two of the following**
	1	Explain Elements of system with diagram.
	2	Explain Spiral Model in detail.
	3	Explain skill required in system analyst.
	4	Explain difference between structured interview and unstructured interview.
	5	Explain questionnaires in detail.
	6	Explain qualities of software.
	7	Explain questionnaires in detail.
	8	Explain Waterfall model in detail.
	9	Write down advantages and disadvantages of Spiral Model.
	10	Explain Record reviews in detail.
Q. No.5)		**Answer any one of the following**
	1	Explain interpersonal skills in system analyst.
	2	Explain Various systems with related management levels.
	3	Explain any eight qualities of software.
	4	Explain fact finding techniques.
	5	Explain any four characteristics of software.

Punyashlok Ahilyadevi Holkar Solapur University,Solapur
Exam
BCA-II (Sem-III) (New CBCS)(w.e.f. June 2020)
Subject: - Database Management System

QUESTION BANK

Q. No.2) Answer any four of the following

1 What is DBMS?
2 List of database users.
3 What is Instance
4 What is Schema
5 What is DDL?
6 What is DML?
7 What is DCL?
8 What are the types of data models.
9 What is entity?
10 What is attributes?
11 What are the types of attributes?
12 What is Relationship?
13 What is Relation?
14 What are the advantages of DBMS?
15 Define the term: i) Tuple ii) Domain
16 Define the term: i)Degree ii) cardinality
17 What is join in DBMS?
18 What is Transaction?
19 ACID stands for?
20 Draw the state diagram of a transaction.
21 What is scheduling?
22 What is conflict serializability.
23 What is view serializability.
24 Define deadlock handling methods
25 What are problems of concurrency control?
26 What is deadlock
27 What is Shared lock?
28 What is Exclusive Lock?
29 What is Undo and Redo operations?
30 What is shadow based recovery ?

Q. No.3) **Write short notes on any two of the following**

1. Explain Limitations of traditional file system.
2. Explain 2-tier and 3-tier architecture.
3. Explain Components of DBMS.
4. Explain Instances and Schemas with diagram.
5. Explain Select, Project, Cartesian Product.
6. What is Transaction? Explain ACID properties with example.
7. Explain conflict and view serializability with example.
8. What is deadlock? How to handle deadlock?
9. What are the Advantages and Disadvantages of Data Distribution.
10. Explain checkpoints/syncpoints/ savepoints.

Q. No.4) **Answer any Two of the following**

1. Explain transaction states with diagram
2. Explain Generalization, Specialization and Aggregation
3. Explain Types of scheduling with example
4. Explain Three problems of concurrency control with example.
5. What is data replication? Explain types of data replication?
6. Explain lock based protocols.
7. Explain Database Failure Classification.
8. Explain shadow paging in detail.
9. Explain timestamp based protocol.
10. Explain Log file and log base recovery.

Q. No.5) **Answer any one of the following**

1. What is Join in DBMS? Explain Types of Join with example?
2. Explain Data Fragmentation in detail
3. What is Distributed Database? Explain types of distributed systems?
4. Explain Relationship sets in detail.
5. Explain Relational Algebra operations with example.

Punyashlok Ahilyadevi Holkar Solapur University,Solapur
Exam
B.C.A.-III (Sem-V) (CBCS)(w.e.f. June 2021)
Subject: - Recent Trends in IT

QUESTION BANK

Q.2) Solve any Eight of the following.

1 What is Green IT?
2 What is Burden in Green IT?
3 What is Big Data?
4 What is Hadoop?
5 What are Green IT Standards and Eco-Labelling.
6 What are Types of Big Data?
7 What is Machine Learning?
8 What is training phase in Machine Learning?
9 Where Big Data is produced?
10 What is Distributed Processing System
11 What is characteristics of cloud computing model?
12 Define Public Clouds.
13 What is Applications of Machine Learning Algorithms?
14 Define IOT.
15 What is Testing phase in Machine Learning?
16 Which Steps Involved in Machine Learning?
17 Define Hybrid Clouds.
18 Define Cloud cube model.
19 What is Energy-Saving Software Techniques?
20 Define Multitenancy.
21 What are benefits of Virtualization?
22 Attributes of Big Data.
23 What is hypervisor.
24 What are the uses of Data Science.
25 What do you mean by Features in Machine learning?
26 What is the Internet of Things?
27 What is Opportunity in Green IT?
28 What are characteristics of multitenant applications.
29 What is data science?
30 Define Community Clouds.
31 What is virtualization?

32 What is virtual machine?

33 Why is Machine Learning important?

34 What is Server Virtualization?

35 Define Private Clouds.

36 What are benefits of cloud computing?

37 What is Role of a Data Scientist?

38 What is Cloud Computing?

39 What are Characteristics of Virtual Machines?

40 What is Populations and sample in Data science?

Q.3) A) Attempt any Two of the following.

1 Write the notes on Statistical modeling and Probabilistic distribution in data science.

2 Explain characteristics of Big data.

3 Explain Virtualization Architecture.

4 Explain Life Cycle of a Device or Hardware in detail.

5 Explain in details the role of a Data Scientist.

6 Explain characteristics of cloud computing model.

7 Explain Cloud Cube Model in detail.

8 Explain Hadoop Architecture.

9 Explain Evaluating and Measuring Software Impact to Platform Power.

10 Discuss in brief about Cloud economics and benefits.

Q.3) b)

1 Explain applications of Machine Learning Algorithms.

2 Explain Green IT Standards and Eco-Labelling of IT in detail.

3 What are Benefits of cloud computing?

4 What is Machine Learning? Describe Training versus Testing in details.

5 Explain Lifecycle of Data Science.

Q.4) A) Attempt any Two of the following.

1 Explain IoT Consumer Applications.

2 What are the Core Components of Hadoop?

3 Explain types of Big Data.

4 Explain Burden or Opportunity in Green IT?

5 Write comparative notes on Hadoop vs Traditional systems.

6 Explain IoT Architecture.

7 Write the note on Green Software.

8 Explain Data scientist skills.

9 What is Big Data and where it is produced?

10 Explain applications of Big Data.

Q.4) b)

1 Explain Reuse, Recycle and Dispose.

2 Explain Benefits of Data Science

3 Explain in details the architecture of IOT and applications of IOT.

4 Explain Machine Learning vs. Traditional Programming.

5 What are benefits of Big Data.

Q.5) Attempt any Two of the following.

1 What is Machine Learning? Why is Machine Learning important?

2 Explain Cloud Deployment Models in detail.

3 What is Virtual Machines? Explain Architecture of Virtual Machines in detail.

4 What are the Environmental impacts of IT and explain the Holistic Approach to Greening IT.

5 Explain IoT Applications in detail.

6 Explain Classification of Machine Learning in detail.

7 What are the Predictive and descriptive tasks in machine learning?

8 What is multitenancy? Explain characteristics of multitenant applications.

9 Explain difference Between Hadoop and traditional system.

10 What do you mean by virtualization? Explain in details about Virtualization technologies and architectures

P.A.H. SOLAPUR UNIVERSITY SOLAPUR
B.C.A. III SEM V CBCS (w.e.f. JUNE 2021) EXAMINATION
PAPER XIII SUBJECT-LINUX and Shell Programming MARKS 80

QUESTION BANK

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2 MARKS QUESTIONS

1) Who is Developer of Linux OS?
2) State the names of UNIX Developers.
3) What do you mean by Open source?
4) Define Shell and list out its any two types.
5) List out functions of kernel.
6) Define Portable O.S.
7) Define Linux Distribution.
8) List out Linux Distributions.
9) State full forms of KDE & GNOME
10) Define File System.
11) List out File types in Linux O.S.
12) State purpose of /bin directory.
13) State purpose of /dev directory.
14) State purpose of /boot directory.
15) State purpose of /etc directory.
16) State purpose of /lib directory.
17) State purpose of /mnt directory.
18) State purpose of /opt directory.
19) State purpose of /tmp directory.
20) State purpose of /usr directory.
21) State purpose of /var directory.
22) Define Boot Block.
23) Define Super Block.
24) Define Inode Block.
25) Define Data Block.
26) Define Mounting.
27) Define Mount Point.
28) State purpose of $mount command.
29) State purpose of $umount command.
30) List out any 4 File and Directory Mgt. commands.
31) State purpose of $mkdir command
32) State purpose of $rmdir command
33) State purpose of $cd and $pwd command.
34) State purpose of $find command

35) State purpose of $head command
36) State purpose of $tail command
37) State purpose of $pr command
38) State purpose of $cp command
39) State purpose of $mv command
40) State purpose of $rm command
41) State purpose of $cat command.
42) State purpose of $more command
43) State purpose of $less command
44) State purpose of $pr command
45) State purpose of $cut command
46) State purpose of $paste command
47) State purpose of $sort command
48) State purpose of $uniq command
49) State purpose of $grep command.
50) How we can use single line comment in shell script?
51) How we can use multi line comment in shell script?
52) Define Shell Script.
53) State use of If statement with syntax
54) State use of If-else statement with syntax
55) State use of while statement with syntax
56) State use of until statement with syntax
57) Define piping.
58) Define Metacharacter.
59) Define Shell Process
60) Define Boot Loader.
61) Define System Administrator.
62) State purpose of ping command.
63) State use of finger command.
64) State use of who command.
65) State use of traceroute command.
66) State use of host command.
67) What is use of SMB protocol?
68) What is use of FTP protocol?
69) What is use of DHCP protocol?
70) What is use of LDAP protocol?
71) What is use of NFS protocol?
72) What is use of NIS protocol?
73) What is use of rsh command?
74) What is use of ssh command?
75) Define Shell variable.

4 MARKS QUESTIONS

1. Explain $chmod command
2. Explain $chown command
3. Explain $chgrp command
4. Explain $lpr command
5. Explain $lpq command
6. Explain $lprm command
7. What is difference between $more and $less command?
8. How can we use $ln command to create symbolic link?
9. List out any 4 rules for shell variable.
10. Wite a note on echo statement.
11. Wite a note on read statement.
12. Wite a note on expr statement.
13. Wite a note on test statement.
14. How we can store command output to shell variable?
15. Write note on Linux Kernel.

5 MARKS QUESTIONS

1. Explain #useradd Command with usage, syntax, options and ex.
2. Explain Linux O.S Architecture in brief.
3. Explain #userdel Command with usage, syntax, options and ex.
4. Explain $mkdir Command with usage, syntax, options and ex.
5. Explain $rmdir Command with usage, syntax, options and ex.
6. Explain $ls Command with usage, syntax, options and ex.
7. Explain $paste command.
8. Explain $grep Command with usage, syntax, options.
9. Explain $sort Command with usage, syntax, options.
10. Explain $uniq Command with usage, syntax, options.
11. Explain $cp Command with usage, syntax, options and ex.
12. Explain $mv Command with usage, syntax, options and ex.
13. Explain $rm Command with usage, syntax, options and ex.
14. Explain $ln Command with usage, syntax, options and ex
15. Write s shell script to check entered number is odd/even.

(Shell Scripts can asked as above…)

6 MARKS QUESTIONS

1. List out Differences between GRUB and LILO.
2. Explain File Types in Linux O.S.
3. Write note on File System parts in Linux.
4. Explain $pr command with options.
5. Explain $tar command with options.
6. Explain $ps command.
7. Explain Background and foreground execution of job.
8. Explain kill command.
9. Explain how to change priority of process ?
10. Explain SELinux.

8 MARKS QUESTIONS

1. Explain Features of Linux O.S.
2. List out Comparisons between Linux O.S. and Windows O.S.
3. Explain Hierarchy of File System.
4. Explain User and Group Mgt. Commands with Ex.
5. Explain Vi Editor with its modes.
6. Explain File and directory permission commands with Ex.
7. Explain file printing command category.
8. Explain Archive and File compression commands.
9. Define Metacharacter and list out any 7 metacharaters with their usage.
10. Explain I/O Redirection and piping in detail.
11. Explain case..esac statement with menu driven shell script to perform basic arithmetic operations.
12. Define System Administrator and State roles of System Admiistrator.
13. Explain $Zip and $Unzip Commands.
14. Explain conditional statements in shell scripting.
15. Write a shell to check enterd number is palindrome or not.
    (such type of shell script questions can be asked…)

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

B.C.A. - II (Semester - IV) (New) (CBCS) Examination March/April-2022

Data Structure using 'C'-II

Question Bank

Q.No.2) 2 Marks Questions (6*5=30Q)

1. Define Height and Depth of tree
2. What is time & space complexity?
3. Define Binary Tree.
4. Define Graph.
5. What is data structure?
6. Why tree is called non-linear data structure?
7. What is sorting? Write its advantages.
8. What is Digraph?
9. What is Complete Binary Tree?
10. Explain Node structure of binary tree.
11. What is the purpose of quick sort and advantage?
12. What do you mean by Height balanced tree?
13. List out applications of tree data structure.
14. Why sorting is necessary?
15. What is Min heap tree and Max heap tree?
16. Draw a directed graph with five vertices and seven edges. Exactly one of the edges should be a loop, and do not have any multiple edges.
17. Differentiate between linear & non-linear data structure.
18. List out applications of graph data structure.
19. Define Binary Expression tree.
20. Define Data structure.
21. What is Strictly Binary Tree?
22. What are the types of sorting available in C?
23. What is leaf node and sibling in tree?
24. Define Searching & Sorting.
25. State the long form of AVL.
26. What is Hashing?
27. Define Binary Search Tree.
28. List out the different types of hashing functions?
29. What is the basic idea of shell sort?
30. Define extended binary tree.

Q.No.3) 4 Marks / short notes (3*5=15Q)

1. Binary Expression Tree
2. Quick Sort
3. Linear Searching
4. BFS

5. AVL Tree
6. Selection sort
7. Dijakstra's shortest path algorithm
8. Hashing and different Hash functions.
9. Types of Binary Tree.
10. Shell sort
11. Heap Tree
12. Binary Searching.
13. Types of Graph.
14. Balanced Binary Tree.
15. DFS

Q. No.4) 4 Marks Questions (3*5=15Q)

1. What is Binary Tree? Explain different operation performed on tree
2. Explain Indexed sequential search method in details.
3. Write a program to implement Bubble sort
4. Explain different Types of data structure.
5. Write a program to implement binary search method that searches entered element.
6. Explain different tree terminologies.
7. Explain types of searching with example
8. Write algorithm of Merge Sort.
9. Explain the creation and insertion of node operation in BST.
10. Write the tree traversal functions.
11. Write a program to implement linear search method that searches entered element.
12. Sort the following data using Bubble sort:-
    89 56 78 12 47 98 54 69 32 21
13. Write the algorithm to implement Binary Searching.
14. Explain the Graph Representation using Array.
15. Explain LR rotation of AVL tree.

Q.No.5) 8 Marks Questions(2*5=10Q)

1. Write a program to implement Binary Search tree with following operations.
    a. Insert node b. Delete node

2. Explain radix sort method with example.
3. Explain AVL Tree with all rotations
4. What is graph? Explain its types with example.
5. Explain different tree traversal methods.
6. Write algorithm for bubble sort method. And sort following numbers in
7. Ascending order using bubble sort.
8. 56, 78, 80, 20, 86
9. Write a program to implement binary tree with tree traversal method.
10. Explain the graph traversals-BFS & DFS in detail

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

B.C.A. - I (Semester - II) (New) (CBCS) Examination March/April-2022

Software Engineering -II

Question Bank

Q.No.2) 2 Marks Questions (6*5=30Q)

1. What is the purpose of DFD?
2. What is Data Dictionary?
3. What is black box testing?
4. What is system maintenance in SDLC?
5. Define Decision tree.
6. What are the guidelines for drawing DFD?
7. Define Decision Table.
8. In white box testing, what do you verify?
9. Draw program flowchart to find minimum number between two numbers.
10. What are the types of files used in an organization system?
11. What are the different test levels?
12. What are various types of software maintenance?
13. Write any 2 difference between white box and black box testing.
14. What is structured design?
15. What are verification and validation?
16. Why system maintenance is required?
17. What is 0-level DFD?
18. What are CASE tools?
19. What is file organization?
20. What is Configuration of the system?
21. What is Normalization? Mention its different forms.
22. What are the benefits of Structured English?
23. Write any 2 advantages and disadvantages of HIPO.
24. Why do you need to software testing?
25. What Is System Design?
26. What Are The Types Of DFD?
27. What are the different methods of testing?
28. What are features of Data Dictionary
29. Define the terms: Entity and Relationship
30. What are types of Decision Table?

Q.No.3) 4 Marks / short notes (3*5=15Q)

1. Incremental Approach
2. Data Dictionary
3. Structure Chart.
4. Fractional Approach

5. Structured English
6. Setting Sub-system Boundaries
7. White Box Testing
8. Normalization
9. Collection of system statistics
10. Black Box Testing
11. ERD
12. Input output design
13. DFD
14. HIPO chart
15. Decision tree

Q. No.4) 4 Marks Questions (3*5=15Q)

1. What is flowchart? State the principles of flowcharting.
2. Draw a CLD & First level DFD for Payroll System.
3. Explain incremental approach to implementation in brief.
4. Differentiate between physical and logical DFD.
5. Design any 3 input screens for 'Library System'.
6. Construct System flowchart for opening 'Fixed Deposit' account.
7. What is Decision Table? Explain with suitable example.
8. Briefly discuss Type of relationship in the Entity relation Analysis.
9. Draw Entity Relation Diagram for College Admission System.
10. Write flowchart symbols in detail.
11. State the principle objectives of output.
12. What is decision tree? Explain with example.
13. Explain the steps of traditional approach to implementation.
14. What is system maintenance? Explain various categories of maintenance.
15. Draw an HIPO chart for Payroll system.

Q.No.5) 8 Marks Questions(2*5=10Q)

1. What is decision table? Explain its types with example.
2. Draw first level DFD of library system of your college.
3. What is Normalization? Explain up to 3NF with example.
4. What is DFD? Draw the different symbols of DFD.
5. Draw a CLD and first level DFD for College Admission System.
6. Define the term Entity, Attribute and Relationships with example.
7. Construct decision tree and limited entry decision table for following case study:-
8. ABC Company limited decide to give Diwali bonus to all employees, for that management divides employees into 3 categories namely- Administrative staff (AS), Office Staff (OS) and Workers (W) by using following rules:-
    i. If employee is permanent and in AS category then bonus amount is THREE month salary.
    ii. If employee is permanent and in OS category then bonus amount is TWO month salary.
    iii. If employee is permanent and in W category then bonus amount is ONE month salary.

iv. If employee is temporary then bonus amount is HALF corresponding to each category.

9. Draw the first level DFD for ‘Mark Sheet Printing System’.
10. What are the advantages of Incremental approach over Traditional approach of System Construction, explain in detail?

Punyashlok Ahilyadevi Holkar Solapur University, Solapur
B.C.A.-I (Sem-I)(CBCS)
Subject:-Statistical Method - I

Question Bank

Q.1 Answer any four of the following 08

1 Define relative frequency

2 Given –: n = 20, $\sum(X - 8) = 150$. Find mean of X

3 Define Regression

4 Find mode for the values – 40, 38, 36, 29, 32, 25, 22, 20,36

5 State any two objectives of classification.

6 Define – Median

7 Define classification

8 If Cov (X, Y) = – 13.0 and $\sigma x = 3.60$ and $\sigma y = 4.07$ then find value of r

9 State merits and demerits of median

10 Define Attribute.

11 Define class width and class mark.

12 Find mean for the following; 61,62,65,64,60,63,62,65,68,65.

13 The regression equations are x + 2y = 24 and – 2x – 3y = – 42. Find means of x, y .

14 Define Weighted A.M

15 Define – open-end classes

16 Define Karl Pearson's coefficient of correlation.

17 Write the interpretation of correlation coefficient if r = +1, r = – 1, r = 0

18 State any two limitations of Census method.

19 Explain step-by-step how median is obtained in case of continuous frequency distribution

20 Given –: n = 10 , $\sum (X- X)^2 = 400$, $\sum X = 55$. Find C.V.

Q.2 **Attempt any two of the following** 08

1 Explain Simple random sampling method.

2 For the following data obtain the regression line of Y on X by using method of least square method. Also obtain the value of Y when X = 9

X	1	5	3	2	1	1	7	3
Y	6	1	0	0	1	2	1	5

3 Find Mode for the following

No. of jobs completed	0-10	10-20	20-30	30-40	40-50
No. of workers	6	26	47	15	6

4 Define Range, coefficient of Range. State merits and demerits of Range

5 Define regression coefficients. State properties of regression coefficients

6 Explain Scatter diagram.

7 The A.M. of salary of all workers in a factory was Rs. 1,000. The A.M. of salary paid to male and female employees were Rs. 1,400 and Rs. 700 respectively. Find ratio of male and female employees in the factory

8 From the following data, find the missing frequency when Mean is 15.38

X	10	12	14	16	18	20
f	3	7	-	20	8	5

9 Define population, sample. State advantages of sampling over census method

10 Distinguish between absolute and relative measures of dispersion.

Q.3 Answer any Two of the following 08

1 The two lines of regression are $3X - Y - 5 = 0$ and $4X - 3Y = 0$. Find Correlation between X and Y

2 The monthly mean wages for factory A and B are Rs. 5,000 and Rs. 7,000 respectively and S.D. of wages are Rs. 100 and Rs. 130 respectively. In which factory wages shows more variability? Justify your answer

3 Draw histogram for the data given below hence determine mode

Weight in kgs	40-50	50-60	60-70	70-80	80-90	90-100
No. of Persons	20	30	40	25	15	10

4 The A.M. of the following frequency distribution is 5 . find the value of X .

Variable	2	4	6	8
frequency	X-1	X+1	X+1	2X-5

5 Find n if $\sum X^2 = 2250$, $\sum X = 100$, $\sum y^2 = 2250$, $\sum y = 100$, $\sum XY = 1900$ and $r = -0.4$.

6 The A.M. and S.D. of 10 values are 50 and 10 respectively. Later on it is noticed that one of the values 68 was wrongly taken as 58. Find correct A.M. and S.D.

7 Compute correlation coefficient for given : n= 100 $\bar{x} = 62$, $\bar{y} = 53$, S.D.(y)= 12, S.D. (x)=10 , $\sum(X-\bar{X})(Y-\bar{Y}) = 8000$.

8 If n=50, $d' = \frac{x-120}{20}$, $\sum d'^2 = 68$, $\sum d' = -10$ Find mean and S.D.

9 Find S.D. of the following data

Marks	40-50	50-60	60-70	70-80	80-90	90-100
No .of Students	4	6	10	18	9	3

10 The A. M. of wages of all employees is Rs. 5,000 per week. The A.m. of wages of male and female employees were Rs. 5,300 and Rs. 4,800 per week respectively. Find ratio of male and female employees

Q.4 Answer any one of the following 08

1 Define – S.D., C.V. state merits and demerits of S.D. State formula for combined S.D

2 Write a note on construction of Ogives and explain how to determine median by using Ogives

3 Find C.V. for the following data

Weight in kgs	40-45	45-50	50-55	55-60	60-65	65-70	70-75
No.of workers	7	17	22	33	28	18	5

4 Find the correlation coefficient between X and Y and comment on it

Export (X)	10	11	14	14	20	22	16	12	15	13
Import Y)	12	14	15	16	21	26	21	15	16	14

5 Find missing frequency of a class 54 – 72, of median of distribution is 65.

Class	0-18	18-36	18-54	54-72	72-90	90-108	108-126	126-144
frequency	4	6	12	….	14	9	3	1

Punyashlok Ahilyadevi Holkar Solapur University, Solapur
B.C.A.-I (Sem-II)(CBCS)
Subject- Basics of Mathematics - II
Question Bank

Q.1 Answer any four of the following 08

1 Define vertex deleted subgraph. Give one example.

2 Define Complement of a graph.

3 Draw the graph of K_4.

4 Find the number of edges in a complete graph with seven vertices.

5 Define Hamiltonian path.

6 Draw a graph which is both Eulerian and Hamiltonian.

7 Define Edge deleted subgraphs.

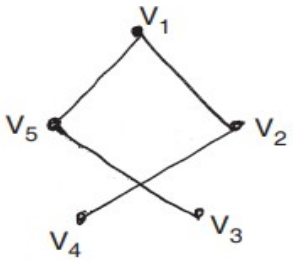
8 Define simple graph with example.

9 Define adjacency matrix.

10 Draw the graph of N_6 .

11 Define Eulerian circuit.

12 Draw complement of the following graph.



13 Define walk.

14 Draw the graph $K_{3,2}$.

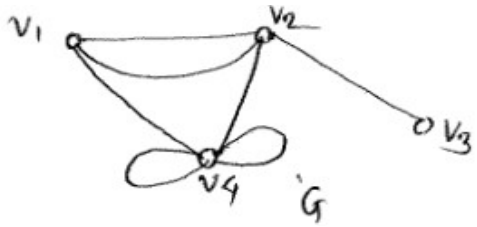
15 Define Eulerian trail.

16 Define tree .Give one example.

17 Define trail and path.

18 Define branch and Chord of spanning tree .

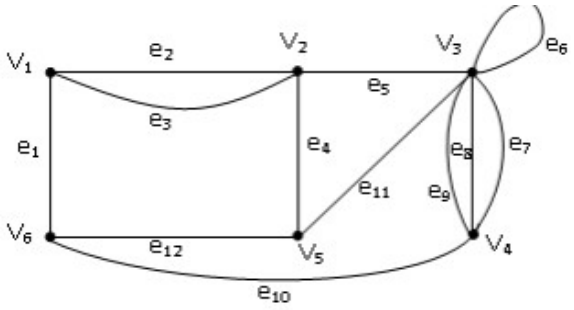
19 Find total degree of the following graph



20 Define Ring sum of two graphs

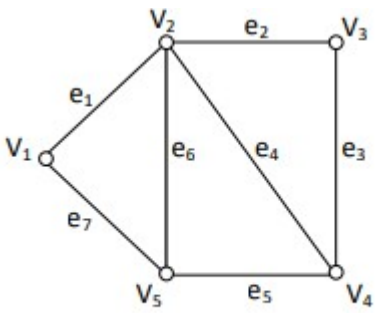
Q.2 **Attempt any two of the following** 08

1 From the following graph write adjacency matrix and incidence matrix

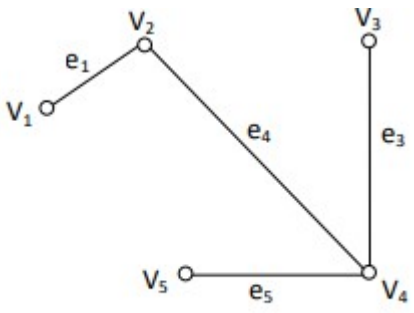


2 Define bipartite graph and complete bipartite graph with suitable example.

3 Find all branches and chords of following connected graph G w.r.t. spanning tree T



G



T

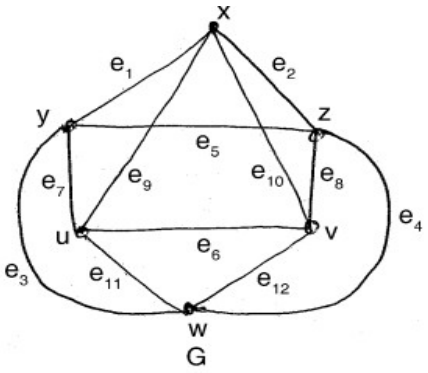
4 Prove that in any graph G, the number of odd degree vertices is even.

5 Explain the Chinese postman problem.

6 If G is graph on n vertices and has exactly (n-1) edges, then prove that G has either a pendant vertex or an isolated vertex.

7 State and prove shaking hand lemma.

8 Show that the graph G given below is Eulerian

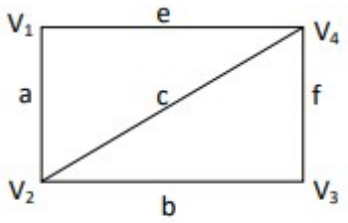


9 If G = (V, E) be any graph then prove that the sum of degrees of all vertices of G is the twice the number of edges of G.

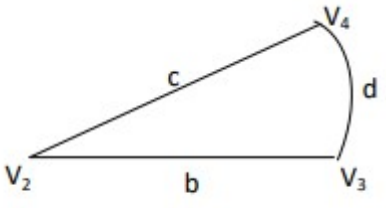
10 Explain Kruskal's algorithm to find the shortest spanning tree of any graph.

Q.3 Answer any Two of the following 08

1 If G1 and G2 are the given Graph's as.



G_1



G_2

Find $G1 \oplus G2$

2 Draw the graphs corresponding to each of the following matrices

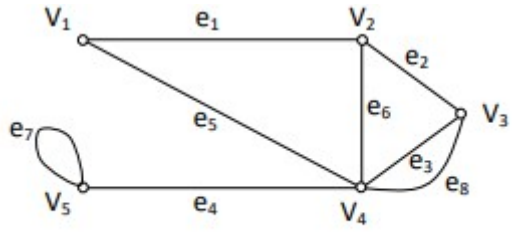
0	1	1	1
1	0	1	1
1	1	0	0
1	1	0	0

0	1	1	1
1	0	1	0
1	1	0	1
1	0	1	0

And

3 From the following graph G, draw the graphs

i) $G - V_1$ ii) $G - e_1, e_4$ iii) $G - V_2, V_4$



'G'

4 Define : a) Weighted graph b) Self commentary graph.

5 Find $K_{2,2} \oplus K_{2,3}$.

6 Define i) Valency ii) Isolated vertex iii) Null Graph iv) Adjacency Matrix

7 Draw a graph which is i) Neither an Eulerian nor Hamiltonian
ii) An Eulerian but not a Hamiltonian

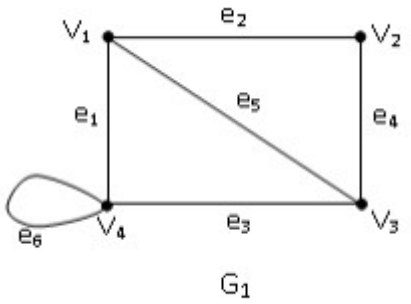
8 Prove that Every tree with at least two vertices has at least two pendant vertices.

9 Draw all possible , non isomorphic trees on 6 vertices

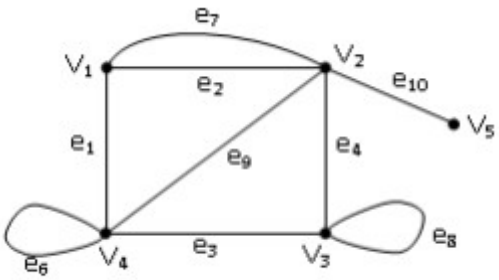
10 Find Hamiltonian path and a Hamiltonian circuit in $K_{4,3}$.

Q.4 Answer any one of the following 08

1 From following graphs $G1$ and $G2$, draw the graphs $G1 \cup G2$ and $G1 \cap G2$

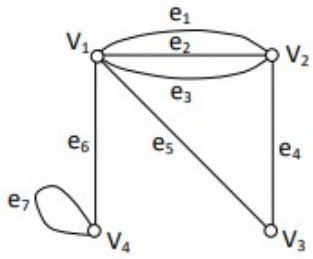


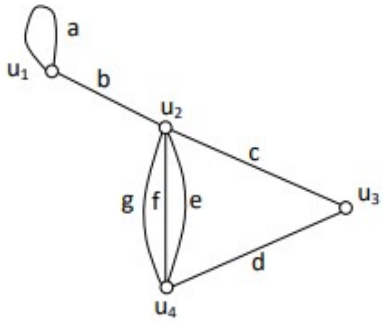
G_1



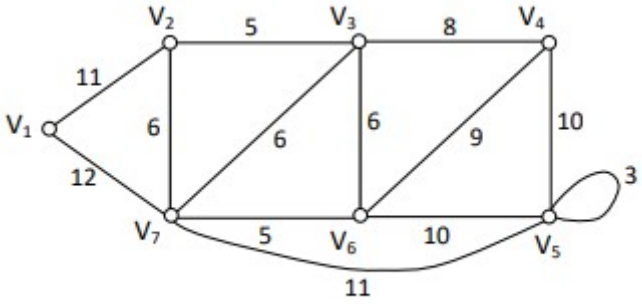
G_2

2 Determine whether the following graphs are isomorphic or not.



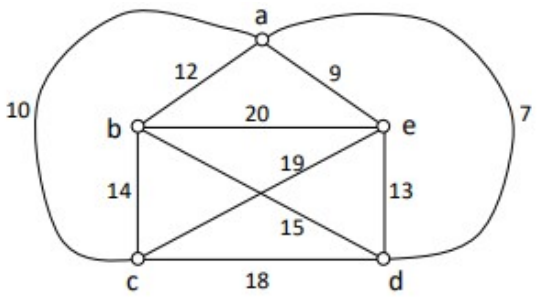


3 By using Kruskal's algorithm find shortest spanning tree and it's weight for the following weighted connected graph G

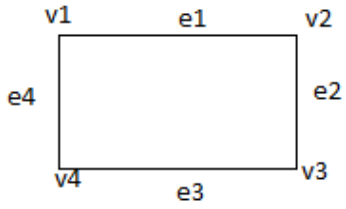


G

4 Starting from vertex 'a' solve the following Travelling Salesman Problem. Also find minimum distance traveled.



5 Draw all possible spanning subgraphs of the following graph G.



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Punyashlok Ahilyadevi Holkar Solapur University, Solapur

B.C.A. - III (Semester - VI) (New) (CBCS) Examination March/April-2022

ADVANCED JAVA

Question Bank

Q. 2) 2 Marks Questions (10*5=50Q)

1) Write any two differences between Session and Cookie.
2) What is Persistent class?
3) What is a SessionFactory?
4) What is the use of Hidden form field?
5) Define session & cookie.
6) What can you tell about Hibernate Configuration File?
7) What are the life-cycle methods for a servlet?
8) What is the purpose of RequestDispatcher Interface?
9) Write any two differences between Servlet and CGI.
10) Write and explain two implicit objects in JSP.
11) Write t any 2 uses of URL Rewriting.
12) List some of the benefits of IoC.
13) Write syntax of forward and include action element.
14) Define session tracking.
15) Write any two advantages of spring.
16) What is the requirement of a tag library?
17) What is POJO class?
18) What is difference between Cookies and HttpSession?
19) What are the advantages of Hibernate over JDBC?
20) How many objects of a servlet is created?
21) What is Bean?
22) What are the limitations of CGI technology?
23) What is difference between PrintWriter and ServletOutputStream?
24) Explain JSP and tell its uses.
25) Differentiate between <jsp:include page=…> and <%@include file=…>.
26) Define Dependency Injection.
27) State the attributes of page directives.
28) What is ORM?
29) What do you mean by IoC (Inversion of Control) Container?
30) State any 4 features of servlet.
31) How to include static files in a JSP page?
32) What are some of the classes for Spring JDBC API?
33) List any 4 advantages of JSP over Servlet
34) Define Locale.
35) What is HQL?
36) What is Hibernate?
37) List the Spring modules.
38) What are JSP Actions?
39) What are the features of Spring Framework?
40) Explain the various scope values for <jsp:useBean> tag.
41) How can you fetch records by Spring JdbcTemplate?
42) What are some of the important interfaces of Hibernate framework?
43) What is Spring AOP?
44) Explain the difference between constructor and setter injection?
45) State the inheritance strategies in Hibernate.
46) What are the different features of Spring Framework?
47) State the implicit objects in JSP.
48) What is CGI technology?

49) What is HibernateTemplate class?
50) What are the ways can Dependency Injection be done?

Q. 3) A) 5 Marks Question (3*5=15Q)

1) Write a program to implement Constructor injection with Collection in spring.
2) Explain various directives in jsp.
3) Write a Servlet program to forward request to another servlet.
4) Write a program to count how many times user has accessed the webpage using HttpSession.
5) What is request dispatcher? Explain forward in request dispatcher with example.
6) What is dependency injection? Explain with example.
7) Explain spring with hibernate with example.
8) Explain Scripting element is JSP.
9) Write a servlet program for handling doPost() method.
10) Explain prepared statement in Spring Jdbc Template with example.
11) Write a program to display current date and time in JSP.
12) List the advantages and disadvantages of HttpSession.
13) Differentiate between GenericServlet and HttpServlet
14) Write a JSP page to check given no is Armstrong or not.
15) What is servlet? Explain features and advantages of servlet.

Q. 3) B) 6 Marks / Short note (1*5=5Q)

1) JSP action tags
2) Inheritance Mapping
3) servlet API
4) JSP API
5) Dependency Injection & IOC

Q. 4 A) 4 Marks Question (3*5=15Q)

1) Write servlet program to display user name and password using url rewritten concept.
2) Explain life cycle methods of servlet with program.
3) Describe Internationalization
4) Describe Resource Bundle
5) Explain Features of Hibernate
6) Write and explain JSTL core tags.
7) Explain JSP tag elements.
8) Explain use of internationalization with example.
9) Explain Servlet Life cycle with example.
10) What is the difference between doGet and doPost methods?
11) Explain Hibernate Framework.
12) Describe SimpleJDBC template
13) Explain JSTL formatting tags.
14) Explain Table per Hierarchy(TPH) inheritance strategy in Hibernate.
15) Explain custom tag in JSP.

Q. 4) B) 8 Marks Question (1*5=5Q)

1) Explain JSP action tags with suitable example.
2) Explain constructor dependency injection of Spring.
3) Explain Spring Architecture.
4) Write a program to demonstrate use of ‘session’ implicit object in JSP.
5) Explain ‘RowMapper’ interface of Spring JDBCTemplate

Q. 5) 8 Marks Question (3*5=15Q)

1) What is cookie? Write a program to add a cookie on client browser.

2) Explain ‘RequestDispatcher’ interface in detail
3) Explain setProperty and getProperty with suitable program.
4) Explain collection Mapping from hibernate.
5) Explain the Hibernate Framework architecture with suitable diagram.
6) Explain steps to create Spring Application with Example
7) Write a program to implements HTTP request POST method in servlet.
8) Explain JSTL SQL Tags.
9) Explain setter injection with map
10) Explain session tracking mechanism in details.
11) Explain JSP implicit objects
12) What is Cookies? Explain use of ‘Cookies’ in servlet.
13) Write a demonstration program to use of include () and forward () method of ‘RequestDispatcher’.
14) What is Cookies? Explain advantages and disadvantages of Cookie.
15) Explain the methods of ResultSet interface.

Question Bank for B.C.A.-I Sem-II (new CBCS)
Subject: Statistical Methods-II

Q.2) Answer the following: (Each question carries 2 marks)

1) State Addition principle of counting.

2) State Multiplication principle of counting.

3) Define permutation.

4) Define combination.

5) In how many ways all the letters of the word 'HOME' can be arranged if repetition of any letter is not allowed?

6) Define random experiment.

7) Define mutually exclusive events.

8) State addition theorem of probability.

9) What is the probability of getting head in the experiment of tossing a coin.

10) Define independent events.

11) Define discrete random variable.

12) Define probability mass function of discrete random variable.

13) Define expectation of discrete random variable.

14) If E(X) = 5 then find E(2X+3).

15) If E(X) = 4, $E(X^2) = 25$ then find V(X).

16) State additive property of Binomial distribution

17) Define Poisson distribution.

18) State mean & variance of Geometric distribution.

19) State additive property of Poisson distribution.

20) Give one real life example where Binomial distribution is useful.

21) Define continuous random variable.

22) Define probability density function of continuous random variable.

23) Define expectation of continuous random variable.

24) Define Uniform distribution.

25) State mean & variance of Uniform distribution.

26) Define Normal distribution.

27) State mean & variance of Normal distribution.

28) If X is having normal distribution with mean=2 & variance =4 then find distribution of 3X+5.

29) If the p.d.f. of a continuous random variable X is

$f(x)=1 \quad ; 0<x<1$ then find $P(x<0.7)$

30) How many 3-digit numbers can be formed by using the digits 1, 2, 3, 4, 5 if repetition of digit is allowed?

Q.3) Write short note on the following: (Each question carries 4 marks)

1) Fundamental principles of counting.

2) Distinguish between permutation & combination.

3) Conditional probability.

4) State addition & multiplication law of probability.

5) Elementary & Compound event.

6) Properties of distribution function of discrete random variable.

7) Expectation & variance of discrete random variable.

8) Properties of Normal distribution.

9) Properties of distribution function of continuous random variable.

10) Expectation & variance of continuous random variable.

11) Write p.m.f. of Binomial distribution. State its mean & variance.

12) Write p.m.f. of Geometric distribution. State its mean & variance.

13) Write p.m.f. of Poisson distribution. State its mean & variance.

14) Write p.d.f. of Uniform distribution. State its mean & variance.

15) Write p.d.f. of Normal distribution. State its mean & variance.

Q.4) Answer the following: (Each question carries 4 marks)

1) In how many ways 3-digit numbers can be formed by using the digits 1, 3, 5, 7, 9

If- i) repetition of digit is not allowed. Ii) repetition of digit is allowed.

2) If there are 4 alphabets A, B, C, D & 7 digits 1, 2, 3, 4, 5, 6, 7 then how many passwords can be formed such that an alphabet followed by 2 digits & repetition of digit is not allowed.

3) In the experiment of rolling two dice simultaneously find the probability of getting—

i) same number on both the dice

ii) the sum of two numbers on the dice is not greater than 8

4) If P(A) =0.4 & P(B) = 0.3 then find P(AUB)

If –i) A & B are independent events

ii) A & B are mutually exclusive events

5) If P(A) = 3/10 , P(B) = 4/10 , P(AUB) = 5/10 then find P(A/B)

6) If discrete random variable X taking values 0,1,2,3 with probabilities 0.1, 0.15, 0.2 & k respectively then find –i) the value of k ii) distribution function of r.v. X

7) If X→ B(10, 0.6) then find- i) P(1<X<4) ii) P(X>3)

8) If X→ P(m=4) then find- i) P(X=5) ii) P(X>1)

9) If P(A) = ¼ P(B) = 1/3 P(B/A) = ½ find P(A/B')

10) If discrete random variable X is having Geometric distribution with parameter p=0.4 then find-i) E(X) ii) V(X) iii) P(X=3)

11) Verify whether the function $f(x) = 3x^2$; o<x<1 is p.d.f. or not?

12) If X→ U(1,5) then find E(X) & hence find E(2X+5)

13)) If X & Y are independent such that X→ N(1,4) & Y→ N(2,9) then find distribution of

i) X+Y ii) 2X+4Y

14) A continuous random variable X having p.d.f. $f(x) = kx^3$; 0<x<1 then find the value of 'k'

15) Verify whether following function is p.m.f. or not

P(x) = x/6 for x = 0, 1, 2, 3

Q.5) Answer the following: (Each question carries 8 marks)

1) Give axiomatic definition of probability. Prove that probability of any event is always lies between 0 & 1.

2) How many numbers can be formed using the digits 4,5,6,9 without repeating any of the digits?

How many of these numbers are divisible by 5?

3) The p.m.f. of r.v. X is as follows:

X :	-2	-1	0	1	2	3
P(x):	0.1	k	0.2	2k	0.3	k

Find-i) the value of k ii) c.d.f. of r.v. X iii)E(X) iv) P(-2<X<2)

4) State & prove addition theorem of probability.

5) Four cards are drawn from a pack of playing cards. Find the probability of getting –

i) one card of each suit ii) two club & two heart cards

iii) 1 king & 3 non-picture cards iv) 2 ace, 1 picture & 1 neither picture nor ace card

6) Define expectation of discrete random variable & hence prove that E(aX+b)= aE(X)+b where a & b are any real numbers.

7) A continuous random variable X has p.d.f. as $f(x) = 5x^4$; $0<x<1$ then find-

i) P(0.4<X<0.7) ii) P(X≥ 0.2) iii) P(X≤ 0.9) iv) distribution function of X

8) If X→ U(-2,7) then find- i) E(X) ii) V(X) iii)P(-1<X<4) iv) P(X>5)

9) For a discrete random variable X having Binomial distribution with mean= 4.5 & variance = 3.15 then find –i) parameters of the distribution

ii) P(x=6)

iii) P(3<X<6)

iv) P(X>14)

10) Define impossible event & prove that probability of an impossible event is always zero.

BCA-II SEM-IV Examination Mar/Apr 2022

OOPS with C++ - II

Question Bank

Q.No.2) Answer any four of the following (08)

1) What are the advantages of inheritance ?
2) What is Base class ?
3) Which header file is used for reading and writing to a file?
4) Which mode is used to open a file in binary mode?
5) How Exception handling is implemented in the C++ program?
6) What is the difference between error and exception?
7) What is the difference between inheritance and polymorphism ?
8) What is Subclass?
9) Which function is used to position back from the end of file object?
10) What is return type of "is_open()" function?
11) Why do we need to handle exceptions?
12) write the correct syntax of the try-catch block
13) what is runtime polymorphism?
14) What is pure virtual function?
15) What is hybrid inheritance?
16) What is stream?
17) What is exception?
18) What is abstract class?
19) What is template?
20) What is delegation?
21) What is inheritance?
22) What is multiple inheritance?
23) What is command line argument?
24) What is pure virtual function?
25) What are the types of derivations?
26) What is manipulators?
27) What is custom exception?
28) What are file opening modes?
29) Syntax of open() function?
30) What are formatted I/O functions?

Q.No.3 A) Write short notes on any two of the following (08)

1) Basic concepts of OOPs.
2)virtual base class.
3) Types of Templates in C++.
4) Abstract base class.
5)Destructor in inheritance.
6) Command line Argument.
7) Pointer to base class.
8) Custom Exception.
9)pure virtual function.
10) stream class.
11)file manipulators.
12) user defined template.
13)pointer to derived class.
14)unformatted I/O function.
15)multilevel inheritance.

Q. No.4) Answer any Two of the following (08)

1)Explain virtual base class with suitable example.
2)What is overriding in C++? Explain with suitable example.
3) Explain the following formatted member functions of 'ios' class.
width(), precision().
4) Explain 'Hierarchical inheritance' with one example
5) Write C++ program that demonstrates use of 'virtual base class'.
6) Explain the following ostream member functions
put(), flush()
7)Explain constructor overloading with example.
8) Explain exception handling mechanism with example.
9) Define FOUR File Manipulation Functions
10) Explain different type of file modes.
11) Explain seekg() & tellg() function.
12) Why we declare base class as virtual? Explain with example.
13) Explain different type of file modes.
14) what is file? Explain formatted I/O functions?
15)what is class template? Explain inheritance of class template.

Q.No.5) Answer any one of the following (08)

1) What is Exception? How exception is handled in C++ illustrate with one example?
2) What is Templates in C++? Explain Types of Templates in C++ with example.
3) Write a program in C++ that checks two files are identical or not.
4) Write a C++ program which copies contents of one file to another.
5) Define template with its uses and explain concept of function template with example
6) Define inheritance and explain Multipath Inheritance with example
7)) Explain 'Hierarchical inheritance' with one example.
8) Write C++ program that demonstrates use of 'virtual base class'.
9) Write a program to illustrate the concept of constructor overloading.
10) Explain different types of inheritance with example

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BCA I Sem I (w.e.f. June 2019)
Basic of Web Programming I
Question Bank

Q.No.2) Answer any four of the following (08)

1) Explain Singular and Paired tags.
2) Explain margin properties.
3) Structure of HTML.
4) List Tag.
5) Media tag in HTML5.
6) Background image property.
7) What is Web Technology?
8) What is Internet?
9) Explain Doctype element.
10) List of Requirement for Internet.
11) What is Audio tag?
12) What is Video Tag?
13) Explain padding properties.
14) Explain Inline CSS.
15) What is required?
16) What is Placeholder?
17) Explain border properties?
18) What is unload event in HTML5?
19) What is onbeforeprint event in HTML5?
20) Explain advantages of CSS.
21) Explain Text properties in CSS.
22) What is Type selectors?
23) Explain Font properties in CSS.
24) What is SVG circle?
25) What is History of web technology?
26) Explain Display properties in CSS.
27) What is CSS box model?
28) Explain IMG tag.
29) What is Anchor tag?
30) What is Translate () in 2D transforms?

Q.No.3 A) Write short notes on any two of the following (08)

1) Explain New tags in HTML5.
2) Explain CSS properties: Background, text, links, position etc.
3) Write Syntax of Id selector and Class selector and Explain with suitable example in CSS.
4) What is Internal CSS with example?
5) Explain text formatting tag in HTML.
6) What is canvas tag in HTML5?
7) Explain ordered list with example.

8) Write Syntax of Universal selector and Child selector and Explain with suitable example in CSS.
9) What is Rotate () and scale () in 2D transforms?
10) What is style tag in CSS?
11) What is Table Tag?
12) What is External CSS with example?
13) Difference between Get and post methods.
14) Explain unordered list with example.
15) What is border-image Property in CSS3?

Q. No.4) Answer any Two of the following (08)

1) Write a program to draw a circle using HTML 5 canvas.
2) Define Image map and explain with example .
3) MEDIA tag in HTML5.
4) What is Frames and Frameset tag?
5) What is Form tag?
6) What is input tag in HTML5?
7) Explain text effects properties in CSS3.
8) Explain media types properties in CSS.
9) Explain need of HTML5.
10) What is new tags in HTML5?
11) Explain floating and opacity properties in CSS.
12) What is SVG line and polygon?
13) What is CSS tables?
14) What is skewX () and skewY () in 2D transforms?
15) Explain any two event in HTML5.

Q.No.5) Answer any one of the following (08)

1) Explain Table tag with proper example
2) What is CSS? Explain its varies types with example.
3) Explain Graphics in HTML5.
4) HTML input tag.
5) Explain 3D Transforms in CSS3.
6) Design a UI page / screen to capture the following details when adding a new department in HMS.Department name, Department Description(use text area), No. Of Doctors, Number of general rooms, Number of ac rooms, Number of non ac rooms , Number of ICU , Cost of general room, Cost of ac room, Cost of non ac room, Cost of each ICU.All fields are mandatory.
7) What is Events in HTML5?
8) What is syntax of selectors and explain types of selectors?
9) Design different web pages that use CSS All Background properties.
10) What is animations in CSS3 with proper example?

Q.No.2) Answer any four of the following (08)

i) WWW.

ii) Anchor tag.

iii) DOC TYPE element

iv)) List any four text formatting tags.

v) What is a web application?

vi) Given any four differences between Get and Post Method.

Q.No.3 A) Write short notes on any two of the following (08)

i) What is CSS? How CSS can be used in HTML.

ii) What is HTML5? Explain input types autofocus, placeholder and number with suitable example.

iii) Explain position and float properties..

Q. No.4) Answer any Two of the following (08)

i) Explain New tags in HTML5.

ii) Explain any two event in HTML5.

iii) Explain need of HTML5.

Q.No.5) Answer any one of the following (08)

i) Explain Graphics in HTML5.

ii) Write Syntax of id selector and class selector and Explain with suitable example in CSS.

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Basic of Web Programming I

Time: 2hrs **Total marks:40**

Set B **Answer Key**

Q. No.1) Multiple choice questions (08)

Question no	Answer
1	a) To store information usually to browser and search engines.
2	c)HTML
3	b) Text
4	c) Both (a) &(b)
5	a) Scalable Vector Graphics
6	a) Fill
7	d) All of these.
8	a) Hyper Text Markup Language.

Q.No.2) Answer any four of the following (08)

i) 2 Marks
ii) 2 Marks
iii) 2 Marks
iv) 2 Marks
v) 2 Marks
vi) 2 Marks

Q.No.3 A) Write short notes on any two of the following (08)

i) 4 Marks
ii) 4 Marks
iii) 4 Marks

Q. No.4) Answer any Two of the following (08)

i) 4 Marks
ii) 4 Marks
iii) 4 Marks

Q.No.5) Answer any one of the following (08)

i) 8 marks
ii) 8 marks

Punyashlok Ahilyadevi Holkar Solapur University, Solapur
B.C.A.-I (Sem-II)(CBCS)
Subject:-Statistical Method - II
Question Bank

Q. 1	Answer any four of the following	08
1	Define impossible events with illustration.	
2	Define Combination.	
3	If ${}^5P_r = 60$, find r	
4	Define Poisson distribution	
5	State additive property of Binomial distribution	
6	Suppose r.v. x has uniform distribution over (2, 10). Calculate $P(2 \leq x \leq 8)$	
7	Define addition principle of counting.	
8	Define independent events	
9	Define expectation of a continuous r.v.	
10	State applications of Uniform distribution	
11	A committee of 4 persons is to be formed from 10 persons . Find the no. of possible ways .	
12	Define Permutation	
13	Define Deterministic experiments .	
14	State real life examples of Binomial Distribution.	
15	State mode and S.D. of N(5,81).	
16	Define conditional probability of A given B.	
17	How many different words can be formed by permuting all letters of the	

word ‘ APPLICATION‘ ?

18 State additive property of normal distribution

19 If p. d. f. of a continuous r. v. X is $f(x) = \frac{3}{4} x(2 - x)$, $0 < x < 2$ then find $P(X \leq 1)$.

20 Given P(A) = 0.5; P(B) = 0.6 and $P(A \cup B) = 0.85$. Find $P(A \cap B)$.

Q. 2 **Attempt any two of the following** 08

1 Define mathematical expectation and variance of discrete r. v. X

2 For the following probability distribution of r. v. X

X	0	1	2	3	4
P(X)	K	3K	5K	2K	K

Find value of K and $P(X \geq 2)$

3 Define a Geometric Distribution. State its mean and Variance

4 Define Normal distribution. State its important properties

5 Let $X \rightarrow P(m)$ If $P[X=5] = 0.3\ P[X=4]$ Find parameters and $P[X>3]$

6 Let $X \rightarrow B(n, p)$ If mean=10 and variance=5 find $P[X=5]$

7 For the following probability distribution of a discrete r, v. X.
Find V(X).

X	2	4	6	8	10
P(X)	0.3	0.1	0.2	0.3	0.1

8 Define cumulative distribution function of a continuous r. v. x. State any four properties of it

9 Define uniform distribution. State mean and variance of it.

10 The average daily fresh milk by a milk producer's union is 40,000 liters and the minimum is 25,000 liters per day . Assuming a uniform distribution , find the maximum milk procurement in a day and what percentage of days of the procurement will exceed 35,000 liters ?

Q. 3 Answer any Two of the following 08

1 The average number of misprints per page of a book is 1.5. Assuming the distribution of number of misprints to be Poisson, find the probability that a particular book is free from misprints?

2 If P (A) = 0.59, P (B) = 0.3, P(A ∩B) = 0.21 then find P(AUB), P(A ∩B') and P(A' ∩ B)

3 If X → B(n=6; P). Find value of P such that, P(X = 4) = P(X = 2).

4 Define classical definition of probability and show that P(A) = 1− P(A).

5 Verify whether the following function is the probability density function of a continuous r.v. X.

$$f(x)=\begin{cases}2x, \wedge 0<x<1\\ 0, O.W.\end{cases}$$

If yes, then find the P(X ≥ 0.25).

6 If a continuous r.v. X having p.d.f. f(x) = $3x^2$, 0 < x < 1 then find its mean and Variance .

7 If X and Y are independent Poisson random variables with means 2 and 5 respectively. Find a) $P[\frac{X+Y}{2}<1]$ b) P[3(X+Y)≥9]

8 If X is a r. v. with pdf

$$f(x)=\begin{cases}\frac{3}{2}x^2, \wedge -1<x<1\\ 0, o.w.\end{cases}$$

Find a) c.d.f. b) P[-0.25<x<0.66]

9 An unbiased coin is tossed and a fair die is rolled.
If A = {Tail} and B = {6} then verify whether the events A and B are independent

10 If X is uniformly distributed random with mean 1 and variance 4/3 the find P[X< 0]

Q. 4 Answer any one of the following 08

1 A box contains 8 white balls and 6 black balls. Two balls are drawn at random one by one without replacement. Find the probability of drawing a) both white balls b) first white and second black balls.

2 If X is a r. v. with pdf

f(x)= $\frac{1}{2\sqrt{2\pi}}\, e^{\frac{-(x-5)^2}{8}}$ - ∞<x<∞

Find i) and σ ii) E(3X-2) iii) V(5X) iv) V(2X+5)

3 If X and Y are independent Binomial variables with parameters (5,0.5) and (7, 0.5) respectively. Find a) P[$\frac{X+Y}{3} \geq 1$]

b) mean and variance of (X+Y)

4 Give axiomatic definition of probability. State and prove addition law of probability.

5 A r.v. X has pdf given by f (X)= $C\ X^2$; $if\ 0 \leq X \leq 1$

= 0 $if\ o.w.$

Find: a) The value of C

b) E(X)

c) V(X)

d) E(5X-3)

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

BCA II Semester IV

Data Structure using C - II

Q. No. 1) Answer any four of the following (for 2 marks)

1) Define tree and give one example.

2) Define binary tree and give one example.

3) Define strictly binary tree and give one example.

4) Define complete binary tree and give one example.

5) Define extended binary tree and give one example.

6) What is binary expression tree? Give an example.

7) Define binary search tree and give one example.

8) Define heap tree. Give one example.

9) Differentiate between min heap tree and max heap tree

10) What are the applications of tree?

11) Define graph. Give one example.

12) What is sorting?

13) What is searching?

14) What is hashing?

15) Define the term : a) parent node b) child node

16) Define the term : a) sibling b) Internal node

17) Define the term : a) Leaf node b) Non-leaf node

18) What is root in tree?

19) Define the term : a) Ancestor node b) Descedent

20) What are the properties of binary tree?

21) Define the term : a) path b) closed path

22) Define the term : a) simple path b) connected path

23) Define complete graph

24) Define weighted graph. Give one example.

25) Define the term : a) Digraph b) loop

26)

Q. No. 4) Answer any two of the following (4 marks)

1) What is height balanced tree? Give one example.

2) What is AVL tree? Give one example.

3) Explain Breadth First Search with example

4) Explain Depth First Search with example.

5) Write an algorithm to search an element into binary search tree.

6)Explain types of graph with example.

7) Crate the binary search tree for the elements:
67,45,90,32,12,76,95,38,59,82

8) Explain how we can delete element from Binary search tree?

9) What is balance factor in AVL tree? Give on example

10) What is AVL tree? Which operation we can perform on AVL tree?

11) What are the application of graph?

12) Distinguish between linear search and binary search.

13) Write a program to implement bubble sort

14) Write a program to implement selection sort

15) Write a program to implement linear search
16) Write a program to implement binary search

17) Explain how we can represent graph using array.

18) Explain how we can represent graph using linked list

19) Write a program to implement breadth first search (BFS) traversal of graph.

20) Write a program to implement depth first search (DFS) traversal of graph.

Q. No. 5) Answer any one of the following (for 8 marks)

1) What is binary tree? Explain all types of binary tree.

2) Explain tree traversal methods with example.

3) Explain Dijkstra's shortest path with example.

4) Explain how we can delete element from Binary search tree?

5) Explain how can insert an element into binary search tree? Give one example.

6) Write a program to implement binary search tree and perform the following operation:

   1) Insert 2) Delete 3) Search

7) Write a program to implement binary search tree and display all elements in traversal methods:

   a)Inorder b) Preorder c) Postorder

8) Explain all AVL rotations with example.

9) What is hash function? Explain their types.

10) Write a program to implement quick sort

11) Write a program to implement radix sort

12) Write a program to implement merge sort

13) Write a program to implement tree sort

14) Explain indexed sequential search with example.

15) Write a program to implement Heap sort

16) Explain adjacency matrix for a weighted directed graph.

17) Write a program to implement BST with following operations:
I) Insert Node II) Count Leaf nodes III) Count Non-Leaf nodes IV) Count Total nodes

18) Write a program to represent undirected and directed graph by using Adjacency matrix.

19) Write a program to represent weighted graph by using Adjacency matrix.

20) Write a program to implement graph by using linked list and perform following operations:
1) Insert Vertex (Node) 2) Display Vertices 3) Search Vertex

BCA-III SEM-VI Examination Mar/Apr 2022

DOT NET TECHNOLOGY

Question Bank

Total Marks:80

Q. 2) Solve any **Eight** of the following. (16)

1) Write the features of ASP.Net
2) Define web service
3) What is the difference between the ASP and ASP.NET?
4) What is the difference between a page theme and a global theme
5) How to display validation messages in one control?
6) What is the difference between Web .config and Machine.config files?
7) List out the properties of Calendar control.
8) What is the use of Global.asax file?
9) What is sitemap file?
10) Why need of master page?
11) What is a cookie?
12) What's the use of Response.Output.Write()?
13) What are the different validators in ASP.NET?
14) List the events in page life cycle.
15) What are the different types of caching?
16) What are the different types of cookies in ASP.NET?
17) Define the types of configuration files.
18) Which compiler is used in ASP.NET?
19) How many types of Server controls are supported by ASP.NET?
20) What is IIS?
21) Write Application Laction?
22) What is the used of "isPostBack" property?
23) Define Page Directive?
24) What is Rich Control?
25) Give the types of list Control?
26) What is web user control?
27) What is self page posting?
28) What is group validation?
29) Define web form?
30) What is content page?
31) What is skin file?
32) What is navigation?
33) Define site map path .
34) What is the difference between tree view and menu control.
35) What xml file?
36) What is state management?
37) What is personalization?
38) What is client side AJAX?
39) Define script manager.

40) What is update panel?
41) Define timer.
42) What is web services?
43) What is SOAP?
44) What is WSDL?
45) What is proxy?
46) What is transaction?
47) What is DML?
48) What DDL?
49) What is ADO .NET?
50) What is View State?

Q. 3) A) Attempt any **Two** ofthe following. (10)

1) Why Master page required? Explain nested master pages with example
2) Explain client and server architecture of AJAX.
3) Explain MultiView Control with example.
4) Explain ASP.Net page life cycle.
5) What is Proxy in web services? How to create it explain.
6) Explain DropDownList control with example.
7)explain architecture of ASP.Net?
8)Explain Compilation Technique in ASP.Net?
9)Explain View State Concept In Details?
10)Explain AdRotator Control?
11) What is theme? How to define Multiple Skins?
12)What is navigation ? Explain nesting sitemap file.
13)what is personalization ? Explain personalization model.
14)what is AJAX? How to create AJAX Toolkit.
15) What is web services? Explain SOAP and WSDL.

Q. 3) 1)Write short note on Proxy in web services with example. (06)

2)What is theme? How to create theme and skin explain with Example?
3)writ note on DML Command.
4)Write Note on Script manager Proxy.
5)Write note on Application Folder.

Q. 4 A) Attempt any **Two** ofthe following. (08)

1) What is navigation? Explain TreeView control with example.
2) What is ADO.Net? Explain architecture of ADO.Net
3) Explain validation group property with example.
4) What is application folder? Explain App_Code folder.
5) What is AJAX? Explain Script Manager & Update Panel control
6) Explain Custom Validator Control in detail with example.
7) Explain Site Nevigation techniques with example.
8)What is Master page? How programmatically assign master mage.
9)Explain types of state management Techniques.
10)explain multiview control.
11) explain range validator with example.

12) . Explain the basic page properties.

13) What is the code behind and inline code?

14) Explain following properties of ListBox control

(i) AutoPostBack (ii) Items

15) What is ViewState? How it works in ASP.NET?

Q. 4) 1) Explain cross-page posting in detail. (08)

2) Explain TreeView control in ASP.NET

3) Explain following two web server controls

(i) LinkButton (ii) ImageButton

4) Explain Framework Base Class Library

5) Explain RadioButtonList Control with its properties and methods.

Q. 5) Attempt any **Two** of the following. (16)

1) Explain ASP.Net page life cycle.

2) What is Personalization? Explain personalization model with tag.

3) What is state management? Explain different state management techniques in detail.

4)Explain client and server architecture of AJAX.

5) Explain with example

1) Membership and role provider 2) Web Service

6) What is Dynamic compilation? Explain compilation technique used is ASP.Net.

7) What are the authentication modes in ASP.NET for security?

8) What is the difference between ExecuteScalar and ExecuteNonQuery?

9)What are the benefits using Ajax? Explain UpdateProgress control in Ajax.

10) What are cookies? Explain various properties of HttpCookie class

11) What is Garbage Collector? How does it work?

12) Explain the need of the Timer Control in AJAX

13) Explain Response.Redirect (). How does it differ from Server.Transfer()?

14) What is Master Page? Explain the relationship between Master Page and Content Page.

15) What is CustomValidator Control? Explain with example.

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B.C.A – II (Semester – IV) (New) (CBCS)

Examination March/April – 2022

Sub- MYSQL

Question Bank

Q.No.2) Answer any four of the following. (2 marks each) (30 Questions) (08)

1) Define the Type Conversion in MYSQL.

2) Explain Alter table command.

3) What is Primary Key?

4) How we sort the data in table.

5) Explain the Numeric data type in MYSQL.

6) What is Unique indexing in MYSQL?

7) Give example of Deleting column in table.

8) String data type in MYSQL.

9) Foreign Key explain with Example.

10) Explain MYSQL Transaction.

11) Explain the Aggregate functions in MYSQL.

12) Explain the Commit in MYSQL.

13) Math functions in MYSQL.

14) Explain the steps to installing MYSQL.

15) What is Update command in MYSQL?

16) Explain the Check Constraints.

17) What is MYSQL Join?

18) Explain Date and Time data type.

19) Explain the Unique Constraints.

20) Explain the DML Components of MYSQL

21) What is Indexing in MYSQL?

22) Write the Insert Command.

23) How we can add a column in table.

24) Explain the Where clause.

25) Explain the Default Constraints.

26) Explain the Export MYSQL to CSV.

27) Explain the having clause.

28) Explain the cursor fetch statement.

29) What is use of Rollback in MYSQL?

30) Explain the Order by clause.

Q.No.3) Write short notes on any two of the following (4 Marks each) (15 Que) (08)

1) MYSQL View.

2) DDL Component.

3) Explain Comparison operator.

4) What Is CSV file?

5) Update table command.

6) Sort data in table.

7) Sub Queries in MYSQL.

8) DCL Component

9) Renaming exiting table.

10) Unique Index.

11) Explain the MINUS Operator.

12) Use of NOT NULL.

13) OUT Stored Procedure Parameter.

14) Fetch record from cursor.

15) DQL Component.

Q. No.4) Answer any Two of the following (4 Marks each) (15 Que) (08)

1) What is Cursor? Explain the types of Cursor?

2) Explain the Types of Join.

3) Explain the given MYSQL Clauses: a) Distinct b) Group By

4) What is use of save point in transaction?

5) How we can create view and delete view on table.

6) Explain the Union All in MYSQL.

7) What is Difference between Column level and table level constraints?

8) Explain use of Composite index.

9) How we can Import CSV to MYSQL.

10) What is Dynamic Stored Procedure?

11) Explain the creating database and Show databases from MYSQL.

12) What is Intersect Operator in MYSQL?

13) What are the Advantages and Disadvantages of JOIN?

14) Define how we can display the table structure.

15) Explain the Architecture of MYSQL.

Q.No.5) Answer any one of the following (10 Que) (08)

1) Explain the Operators in MYSQL with Example.

2) Explain the Components of MYSQL –

DML, DDL, DCL, DQL, TCL.

3) What is Stored Procedure? Explain the Use Of Stored Procedure.

4) What is Cursor? Explain the Types of cursor?

5) Explain the Modify and drop constraints using alter command.

6) Which are the MYSQL Clauses? Explain each with example?

7) How we can create the table in particular database and insert the record in that table?

8) What is Difference in between Primary key and foreign key? Explain with example?

9) What is MYSQL View? How we can create, Update, delete view?

10) What is Indexing in MYSQL? Explain Advantages and Disadvantages of Indexing?

Punyashlok Ahilyadevi Holkar Solapur University, Solapur
B.C.A.-I (Sem-I)(CBCS)
Subject- Basics of Mathematics - I
Question Bank

Q. 1	Answer any four of the following	08
1	If A = {1, 2} find P(A).	
2	Construct the truth table for, $\sim p \rightarrow \sim$q	
3	What is set?	
4	Define anti-symmetric relation	
5	If p and q are false and r and s are true statements, then find truth value of compound statements. [(p $\vee$ s) $\rightarrow \sim$(q $\leftrightarrow$ r)] $\leftrightarrow$ [($\sim$p $\wedge$ s) $\rightarrow$ q].	
6	Prepare truth table for the statement $(\sim p \rightarrow q) \leftrightarrow (p \wedge \mathrm{r})$.	
7	Define tautology	
8	Define Cartesian product	
9	Prepare the truth table for $\sim p \wedge \sim$q	
10	Define Intersection of two sets	
11	If A = {1, 2, 3, 4, 5} and B = {0, 3, 6} find i) $A - B$ ii) $B -$ A	
12	Define Power Set.	
13	Define singular matrix .	
14	Define partial ordering relation	
15	Define Union of two sets	
16	If A = {1, 3, 4, 5 ,10} , B ={2, 4, 5, 8,10} then find A $\bigoplus$ B	
17	Define transitive closure.	

18 Define converse of conditional statement p → q.

19 Define transpose of a matrix

20 Complement of two sets

Q. 2 **Attempt any two of the following** 08

1 If $A = \{a, b, e, g, i\}$, $B = \{b, c, d, f, j, k\}$ verify that $(A \cup B)' = (A' \cap B')$

2 Define Relation and equivalence Relation.

3 Let ~ be an equivalence relation defined on the set A. Prove that any two equivalence classes are either disjoint or identical.

4 State both the DeMorgan's laws in logic. Hence prove any one of them by preparing truth table.

5 Let R be the relation defined on the set Z by xRy if and only if 5x + 6y is divisible by 11, x, y ∈ z. Show that R is an equivalence relation on Z.

6 Find A+B if A= $\begin{pmatrix} 56 & 84 & 64 \\ 25 & 65 & 12 \\ -25 & 15 & 10 \end{pmatrix}$

B= $\begin{pmatrix} -48 & -15 & 25 \\ 0 & 19 & -24 \\ -15 & 18 & 48 \end{pmatrix}$

7 Show that $p \vee (q \vee r) \equiv (p \vee q) \vee r$

8 Prepare the truth table for conjunction , disjunction implication and double implication of the statements p and q

9 Determine whether the following matrices are singular and Non-singular

1) $\begin{pmatrix} 2 & 3 & 4 \\ 3 & 4 & 5 \\ 6 & 9 & 7 \end{pmatrix}$ 2) $\begin{pmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \end{pmatrix}$

10 Prove that p $\rightarrow (q \vee r)$ and $p \rightarrow q \vee (p \rightarrow r)$ are logically equivalent

Q. 3 Answer any Two of the following 08

1 If A ={ 2, 3, 4, 6, 8 }, B = {1, 3, 5, 7, 9 }& C = {2, 3, 7, 8, 9 }Verify that

$A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

2 [9 2 0 5]

Determine Transpose the following matrices

$$\begin{matrix} 1 & 3 & 5 \\ 9 & 7 & 8 \\ 4 & 6 & 7 \\ 4 & 4 & 0 \end{matrix}$$

3 Show the equivalence by preparing truth table.

$(\sim p \vee q) \equiv \sim (p \wedge q) \rightarrow (\sim p \vee (\sim p \vee q))$

4 Define a) Matrix b)Scalar Matrix c) Identity Matrix d) Row matrix

5 Let A = {1,2,3,4,5,}. Let R be the relation defined on the set A by aRb if and only if $|a - b| \leq 4$, for $a, b \in A$. Write relation R. Also write matrix of relation R.

6 Find Determinant For the following matrices

$$\begin{bmatrix} 6 & 8 & 4 \\ 12 & 5 & 8 \\ 5 & 11 & 0 \end{bmatrix} \qquad \begin{vmatrix} 15 & 84 \\ 45 & 13 \end{vmatrix}$$

7 Let A ={ p, q, r }, B={ a, b, c, d} . Find $A \times B$ and $B \times A$. Is Cartesian product commutative?

8 Consider $U = x \; x \in N, x \leq 12$ } be universal set

A ={ 1, 3, 4, 6, 10} , B = {3, 4, 5, 7,11}

Find:- 1) A' 2) B' 3) $A \cup B$ 4) $A \cap B$

9 If A = {a, b, c, d, e}, B = {b, c, e, f, g, h} and C = {a, b, f, g, h, i, j} then verify that

A ∩ (B∪C) = (A∩B) ∪ (A∩C)

10 Let $U = \{x | x \in N \text{ and } 2 \leq x \leq 11\}$,
$A = \{x | x \in N \text{ and } 4 \leq x \leq 10\}$
$B = \{x | x \in N \text{ and } x \text{ is an even number } | < x \leq 11\}$
then find cardinalities of the following sets

a) A' b) A-B c) A∩B' d) A⊕B

Q. 4 Answer any one of the following 08

1 If $A = \{a, b, c, d\}$ let R is relation defined on set A given by R = { (a, a) ,(a, c) ,(b, a) , (b, b) ,(c, a) , (c, d) , (c, c) , (d, a) , (d, c) } Then
i) Write the matrix relation of R
ii) Draw digraph of relation
iii) Write in degree and out degree of each elements of set ?

2 Let R = { (a, a) , (a, b) , (b, c) , (a, c) , (c, a) , (c, b) } be a relation on the set A = {a, b, c} Find the transitive closure of R using warshall's Algorithm.

3 Determine whether the following statement is tautology or contradiction or neither $[p \rightarrow \sim (q \leftrightarrow \sim r)] \wedge [(p \wedge q) \rightarrow \sim r]$.

4 State both Demorgan's laws and distributive laws in logic. Prove any one of distributive law by truth table.

5 Define tautology and contradiction, check whether following statement is either tautology or contradiction.($p \wedge \sim q$)↔ ($\sim p \vee \sim q$)

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BCA II Semester III

Data Structures using C : I

Q. No. 1) Answer any four of the following (for 2 marks)

1) Define ADT

2) Define data structure

3) Define algorithm

4) Define time complexity

5) Define space complexity

6) What is Big-O notation?

7) Define array

8) Define stack. Give an example.

9) Explain the application of stack.

10) Which operations we can perform on stack?

11) Define queue. Give an example.

12) Which operations we can perform on queue?

13) What is priority queue?

14) State the applications of queue

15) State the types of queue.

16) What is deque? Give example.

17) What is linear queue?

18) What is circular queue?

19) Define linked list

20) State the types of linked list?

Q. No. 2) Answer any two of the following or short notes (4 marks)

1) Explain stack as an ADT

2) Explain queue as an ADT

3) Explain array as an ADT

4) Explain characteristics of an algorithm

5) What is divide and conquer?

6) Explain Greedy algorithm

7) Explain branch and bound

8) What is backtracking?

9)Explain dynamic programming

9) Explain types of data structure.

10) Explain types of array with example

11) Which operations we can perform on array?

12) Differentiate between stack and queue

13) Differentiate between linear and circular queue

14) Differentiate between array and linked list

15) What is dynamic stack?

16) What is dynamic queue?

17) Which operations we can perform on linked list?

18) Explain all types of linked list with graph

Q. No. 3) Answer any one of the following (for 8 marks)

1) Write a program to implement STACK using array and perform the following operations

   a) PUSH b) POP c) Display d) Exit

2) Write a program to convert infix expression to postfix expression

3) Write a program to convert infix expression to prefix expression

4) Write a program for matching parenthesis in an expression

5) Write a program to evaluate postfix expression.

6) Write a program to implement queue using array.

7) Write program to implement linear queue using array.

8) Write program to implement circular queue using array.

9) Write program to implement priority queue using array.

10) Write a program to implement singly linear linked list and perform the following operations

    a) Insert at end b) delete from beginning c) Display

11) Write a program to implement doubly linear linked list and perform the following operations

b) Insert at beginning b) delete from end c) Display

12) Write a program to implement circular singly linked list.

13) Write a program to implement circular double linked list.

14) Write a program to implement STACK using linked list

15) Write a program to implement QUEUE using linked list

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BCA-I Sem-I (CBCS-2019)

Paper-DSC2A Software Engineering-I

Question Bank

Q.2) Answers any four of the following. (2 marks for each question)

1) Give any two examples of open system
2) State the characteristics of the system.
3) Define interface.
4) When we use spiral model
5) Define boundary of system
6) State the advantages of prototype model.
7) When we use prototype model
8) Who is system analyst?
9) What is feasibility study? List out its various types.
10) Write any four advantages of spiral model
11) When we use RAD model
12) Write down phases of spiral model
13) EIS stands for---------
14) List out components of expert system
15) TPS stands for---------
16) List out various qualities of software.
17) Definition of software engineering
18) When we use waterfall model
19) Define deterministic system.
20) Define interface.
21) Write any four advantages of waterfall model
22) Define system analysis.
23) State the advantages of prototype model.
24) What is MIS?
25) DSS stands for------
26) Write any four advantages of RAD model
27) Who is system analyst?
28) List out types of system.
29) Define probabilistic system.
30) Define feedback element of system

Q. 3) Write short notes on any two of the following. (4 marks for each question)

1)Expert System
2) Questionnaire
3) Elements of system
4) Explain record review technique
5) Explain Executive Information System
6)Explain prototype model
7)Decision Support System
8) Explain System Analysis in detail.
9)Characteristics of system.
10) Structured and unstructured interviews
11) Explain Characteristics of software
12)Explain observations technique
13)Explain role of system analyst in software development
14)Explain RAD model
15)Explain Need of fact finding techniques.

Q. 4) Answers any two of the following. (4 marks for each question)

1)Differentiate probabilistic and deterministic system.
2)Explain spiral model.
3)Write down a advantages and disadvantages of RAD Model
4)Explain characteristics of software.
5)Explain skill required in system analyst
6)Explain Record reviews in detail.
7)Write down a advantages and disadvantages of waterfall Model
8)Differentiate open and close system.
9)Explain characteristics of software.
10)Explain waterfall model.
11) Note on college is a open system
12)Explain interview technique in detail
13)Write down a advantages and disadvantages of prototype Model
14) Explain difference between structured interview and unstructured interview
15) Write down advantages and disadvantages of Spiral Model

Q.5). Answer any one of the following. (8 marks for each question)

1) Explain SDLC in brief.
2) Explain various qualities of software.
3) What is system analysis? Explain the role of system analyst.
4) Explain various type of system
5) Explain fact finding techniques
6) Explain characteristics and elements of system
7) Explain ES with its components
8) Explain questionnaire with its types
9) Compare waterfall and spiral model
10) Explain DSS with example

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BCA-I Sem-I (CBCS-2019)

Paper-DSC1A Logic Development with 'C' Programming

Question Bank

Q.2) Answers any four of the following. (2 marks for each question)

1) Define variable with example.
2) What is the purpose of looping statements?
3) Define logic and list out its type.
4) Define algorithm.
5) List out bitwise operators
6) Define pseudo code
7) What is sequence logic?
8) What is explicit type casting?
9) Write the syntax of printf() function
10) What are the purpose of jumping statement?
11) Write an algorithm to check given number is odd or even
12) List out rules for identifier declaration.
13) Write the syntax for scanf() function
14) Draw the algorithm to find out large number between two numbers
15) Define constant with example.
16) Define array with syntax.
17) List out problem solving steps
18) What is implicit type casting?
19) Differentiate between variable and constant
20) Write the syntax and example of array initialization
21) Write the syntax of switch statement
22) What is iteration logic?
23) Give the syntax of for loop
24) List out special symbols used in C
25) List out format specifiers used in C
26) Define string with example
27) Write down syntax for 2-D array
28) Write down syntax for goto statement
29) List out escape sequence characters
30) Define character array with syntax?

Q. 3) Write short notes on any two of the following.(4 marks for each question)

1)Explain unconditional branching statement
2) Data types in c language
3) Write a program to print elements of an array in ascending order
4) Structure of C program
5) Relational operators
6) Write a program to generate energy bill by using else if ladder
7)Write a program to display largest number from array
8) Bitwise operators
9) Explain if else ladder with example
10)History of C language
11) Flowchart and its symbols
12)What are the characteristics of algorithm?
13)What are the characteristics of pseudo code?
14) What are the characteristics of flowchart?
15) Differentiate between entry controlled and exit controlled loops

Q. 4) Answers any two of the following. (4 marks for each question)

1) Write a program to display table of a given number
2) Explain else if ladder with example
3) Explain nested if else statement with example
4)What is array? Define its types with syntax.
5) Define flowchart. Draw flowchart for to find large number between three numbers
6)What are the characteristics of 'C' language
7) Write a program to find out given number is positive/negative odd/even
8) Differentiate while and do-while loops
9)Write a program to display Fibonacci series.
10) Write a program for addition, subtraction and multiplication of two numbers by using switch case
11) Explain 'C' tokens
12)Write a program to display to search an element into array
13)Draw a flowchart to check a given number is armstrong or not
14) Explain precedence and associativity of operators
15)Explain structure of C program with example

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Q.5).Answer any one of the following. (8 marks for each question)

1) List various operators in c. implement ++ and -- operators
2) Define 2-D array. Write a program to perform addition of 3X3 matrix
3) Define string. Explain various string handling functions
4)Explain types of control statements
5) Explain bitwise operators with example.
6)Write a program to display palindrome numbers between 1 to 500
7)Write a program to display armstrong numbers between 1 to 500
8)Write a program to display prime numbers between 1 to 500
9)Explain structure of c program with suitable example
10)Explain comparison operators with example

Nature of Question Paper for choice based credit system (CBCS)
BCA-II (Sem III)
Subject:- *Software Testing and Quality Assuarace*
Question Bank

Q.No.2) Answer any four of the following *(08)*

1. *Buddy Testing*
2. *Load Testing*
3. *Error guessing*
4. *Test Planning*
5. *Decision Table*
6. *Non-Incremental*
7. *Retest*
8. *Usability Testing*
9. *Peer review*
10. *NOT Function*
11. *Alpha*
12. *Verification*
13. *System Testing*
14. *Soak Testing*
15. *Volume Testing*
16. *Validation*
17. *Monkey Testing*
18. *Beta*
19. *Smoke Testing*
20. *Reporting*

Q.No.3 Write short notes on any two of the following *(08)*

1. *Explain Difference between Bug and Defect.*
2. *Difference between Failure and Error.*
3. *Explain Types of Test Cases.*
4. *Explain Regression Testing and its types.*
5. *Explain Use Case Testing in detail.*

6. *What is Software Testing? Importance or need of software testing.*
7. *Explain Equivalence Class Partition Technique in BBT.*
8. *Write Test Execution Report and Summary Report.*
9. *Explain Defect Logging and Tracking.*
10. *Explain Static Techniques in WBT.*

Q. No.4) Answer any Two of the following *(08)*

1. *Explain Integration Testing and types.*
2. *Explain Types of Bugs.*
3. *Explain experienced Based Techniques.*
4. *Design test case for login page.*
5. *Explain Advantages & Disadvantages of WBT.*
6. *Explain Integration Testing and its type.*
7. *Explain Advantages & Disadvantages of BBT.*
8. *Explain Test Case and write a test case with any examples.*
9. *Differences between Manual and Automation Testing.*
10. *Design test case for Online Purchase Order in detail.*

Q.No.5) Answer any one of the following *(08)*

1. *Explain Software Test Life Cycle in detail.*
2. *Explain Boundary Value Analysis, State Transition and Cause Effective Graph in BBT.*
3. *Write Test Plan and Prepare Traceability Matrix.*
4. *Explain Performance Testing and its types.*
5. *Explain Statement Coverage Testing, Branch Coverage Testing, Path Coverage Testing and Inspection in WBT.*

Nature of Question Paper for choice based credit system (CBCS)
BCA-II (Sem III)
Subject:- *Computer Networks - I*
Question Bank

Q.No.2) Answer any four of the following *(08)*

1. *Network*
2. *Hubs*
3. *Frames*
4. *Acknowledgement*
5. *Connection less oriented*
6. *Period*
7. *Packets*
8. *Fourier analysis*
9. *CSMA*
10. *Flow Control*
11. *Repeaters*
12. *Bridges*
13. *Bits*
14. *Routers*
15. *Gateways*
16. *TPDU*
17. *Error*
18. *Response*
19. *Error Control*
20. *Connection oriented*

Q.No.3 Write short notes on any two of the following *(08)*

1. *Explain Data Flow Communication Model.*
2. *Explain Services Primitives in detail.*
3. *Explain Hybrid and Mesh topology in detail.*
4. *Explain Error Recovery Protocol (Stop and Wait ARQ, Go-Back-N ARQ).*
5. *Explain CSMA and CSMA/CD, CSMA/CA.*
6. *Explain pulse code modulation in detail.*

7. *What is Multiplexing? Explain Frequency, Time and Wavelength.*
8. *Explain Manchester & differential Manchester Coding in detail.*
9. *Explain Transmission Impairment.*
10. *Explain Services Primitives in detail.*

Q. No.4) Answer any Two of the following *(08)*

1. *Explain Checksum Check Error correction Techniques.*
2. *Difference between Synchronous and Asynchronous Transmission.*
3. *Explain Analog to digital conversion.*
4. *Explain Data Representation in detail.*
5. *Explain Design issues of Data Link Layer.*
6. *Explain Components of Data Communication.*
7. *Explain Parallel and Serial Transmission.*
8. *Explain Modulation and its type Amplitude, Frequency and Phase.*
9. *Explain Simplex, Stop and Wait and Selective repeat ARQ.*
10. *Explain Channelization (FDMA, TDMA, and CDMA).*
11. *Explain Analog Transmission-Modem.*

Q.No.5) Answer any one of the following *(08)*

1. *Define Network and explain OSI reference model in detail.*
2. *Explain Switching (Circuit, Message and Packet Switching) in detail.*
3. *Explain Network types with advantages and disadvantages in detail.*
4. *Explain TCP/IP Protocol Suite in detail.*
5. *Explain Transmission Guided Media and Unguided Media in detail.*

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BCA-II Sem-III (CBCS-2020)

Paper-DSC2C (Section-II) Software Testing & Quality Assurance

Question Bank

Q.2) Answers any four of the following. (2 marks for each question)

1) Why testing is required?
2) Define automated testing
3) What are the phases of testing?
4) Write down advantages of acceptance testing
5) What is use of performance testing?
6) What is beta testing?
7) Write down advantages of BBT
8) Define manual testing
9) What are the advantages of WBT?
10) What is test case template?
11) When we can start testing?
12) Write down advantages of regression testing
13) Write down advantages of system testing
14) List out dynamic testing techniques of WBT?
15) Define review process
16) What are the various goals of loop testing?
17) Write down advantages of integration testing
18) What is alpha testing?
19) List out steps of the test plan .
20) List out types of functional testing.

Q. 3) Write short notes on any two of the following.(4 marks for each question)

1)Stress testing
2)Boundary value analysis
3) Loop testing
4)Volume testing
5)Decision table testing
6)Review process
7) Explain Types of Test Cases
8)Static testing techniques
9)Soak Testing
10)Non-Incremental testing

Q. 4) Answers any two of the following. (4 marks for each question)

1)Differentiate alpha and beta testing.
2)Design test case for online purchase order in detail.
3)Explain smoke testing
4)Differentiate static and dynamic testing

5)Explain experience based testing techniques
6)What is review process? Explain
7)Differentiate top-down and bottom-up incremental integration testing.
8)Explain Equivalence Class Partitioning
9)Create test execution report for gmail login
10)Differentiate automated and manual testing

Q.5). Answer <u>any one</u> of the following. (8 marks for each question)

1)What is performance testing? Explain its various types
2)Explain defect life cycle
3)Explain the testing life cycle in detail.
4)Explain integration testing in detail
5)Create review report for gmail login account

Punyashlok Ahilyadevi Holkar Solapur University, Solapur

BCA-III Sem-V (CBCS), (w.e.f.2020-21)

Computer Graphics

Time: 3hrs **Question Bank** **Total marks:80**

Question Paper

Q1) A) Multiple choice questions. **(10)**

Q. 1) B) Fill in the blank/Definition/One sentence answer/ One word answer/ Give the name/Predict the product etc. **(06)**

Q2) solve any eight of the following **(16)**

1) What do you mean by computer graphics?
2) Write merits and demerits of DDA line drawing algorithm.
3) List out graphical input devises
4) What is clipping?
5) What is vector graphics?
6) List out application areas of computer graphics.
7) What is vanishing point?
8) What is pixel phasing?
9) Differentiate between line printer and dot matrix printer.
10) List out various operations performed by Display controller.
11) What do you mean by sharing?
12) What is 2D rotation?
13) What is computer graphics? List out its applications.
14) What is Parallel projection?
15) What is Plotter?
16) List out graphical output devises.
17) What are the applications of computer graphics?
18) What is clipping?
19) Write 3D transformation matrix for scaling?
20) What is Trackball?
21) List out different graphics packages.
22) What are the problems in scan conversion?
23) Define polygon and its type.
24) What is translation?
25) Define projection.
26) List out graphical input devises.
27) Boundary fill algorithm.
28) Enlist types and subtypes of parallel projection.
29) List out polygon filling algorithms.
30) List out application areas of computer graphics.
31) Write a short note on any one graphics output device.
32) What are the different types of polygon?

33) Write a short note on plasma panel.
34) List out advantages and disadvantages of Plotter.
35) What are the merits and demerits of DDA algorithm?
36) What is display controller? List out different tasks performed by it.
37) 2D shearing transformation.
38) What is windows?
39) What is parallel projection?
40) What is hogman polygon clipping?

Q3 A) Attempt any two of the following (10)

1) What are the applications of computer graphics?
2) Write a short note on any one graphics output device.
3) Write the difference between 'Raster Scan display' and 'Random Scan Display'
4) Derive the transformation matrix for reflection in 3D about arbitrary planes.
5) What are the merits and demerits of DDA line drawing algorithm.
6) What is viewing transformation?
7) Digitize the line with end points (20, 10) and (30, 18) using DDA algorithm.
8) What is 3D shearing?
9) Explain combined transformation in 2D.
10) What are the merits and demerits of DDA line drawing algorithm.

Q3 B) short note solve (06)

1) Digitize the line segment having starting point (5,7) & end point (11,15) using Bresenham's line drawing algorithm.
2) Explain working of CRT in details.
3) Explain ordered edge list algorithm.
4) Differentiate between raster scan and random scan display.
5) A line segment having end points (3, 2) and (7, 2) is rotated anticlockwise by an angle 90°. Find rotation matrix and the resultant points after rotation.

Q4 A) attempt any two of the following. (08)

1) What is viewing transformation?
2) Rorate a triangle defined by A(0,0),B(6,0),C(3,3) by 900 about rigin in anticlockwise direction.
3) What is Plotter? Explain Pen plotter in details .
4) Scale the polygon with coordinates A(2,5), B(7,10) and C(10,2) by 2 units in X direction and 2
   units in Y-direction.
5) Explain merits & demerits of plasma panel display.
6) Write the difference between 'Raster Scan display' and 'Random Scan Display'
7) Explain DDA circle drawing algorithm with example.
8) Explain 2D reflection in details.
9) Explain Window to view point mapping in 2D.
10) Explain hard copy raster devices.

Q4 B) Describe /explain /solve (08)

1) Translate the square ABCD whose co-ordinates areA(0,0),B(3,0),C(3,3) and D(0,3) by 2-units in both directions and then scale it by 1.5 units in x-direction and 0.5 units in y-direction.
2) Derive the transformation matrix for the rotation of graphics object about

an arbitrary point.

3) Explain Sutherland-Hodgman algorithm for polygon clipping.
4) What is viewing transformation? What is difference between window and viewport?
5) Explain the 3-D reflection relative to co-ordinate axis.

Q5) attempt any two of the following. (16)

1) Explain CRT monitor in detail.
2) What is transformation? Explain its types in detail.
3) Explain DDA line draing Algorithm.Also write Advantage & Disadvantages.
4) What is 'Composition of 2D transformation'? Explain it with suitable example.
5) Explain DDA line drawing algorithm with suitable example.
6) Explain 3D geometric transformation in detail.
7) Explain in detail Random Scan Display and Raster Scan Display.
8) Translate the square ABCD whose co-ordinates are A(0,0),B(3,0),C(3,3) and D(0,3) by 2-units in both directions and then scale it by 1.5 units in x-direction and 0.5 units in y-direction.
9) What is homogeneous co-ordinate system? Write need of homogeneous co-ordinate System and give the homogeneous co-ordinate matrices for 2D translation, rotation and scaling.
10) Derive the transformation matrix for the rotation of graphics object about an arbitrary point.

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BCA-III Sem-V (CBCS), (w.e.f.2020-21)

Recent Trends in IT

Time: 3hrs **Question Bank** **Total marks:80**

Question Paper

Q1) A) Multiple choice questions. **(10)**

Q. 1) B) Fill in the blank/Definition/One sentence answer/ One word answer/ Give the name/Predict the product etc. **(06)**

Q2) solve any eight of the following **(16)**

1) What is Big Data?
2) What is Green IT?
3) Defining Cloud computing.
4) What is the Internet of Things?
5) What is Structure of Learning?
6) What is Hadoop?
7) Explain Attributes of Big Data.
8) Definition of Data Science.
9) What is Virtualization?
10) What is software?
11) What is Software?
12) Where it is produced Big Data?
13) What is Hadoop History?
14) What is Data Science?
15) Explain Cloud computing.
16) What is Limitations of Big Data?
17) Explain Attributes of Big Data.
18) Explain Structure of Learning.
19) What is Populations?
20) What is Name node?
21) What is Server Virtualization?
22) Define IOT.
23) What do you mean by Features in Machine learning?
24) What is Burden in Green IT?
25) What are Green IT Standards and Eco-Labelling.
26) What is training phase in Machine Learning?
27) Where Big Data is produced?
28) Define Public Clouds.
29) What is Testing phase in Machine Learning?
30) What are benefits of Virtualization?
31) What is hypervisor.
32) What are the uses of Data Science.
33) What do you mean by Features in Machine learning?
34) What is Opportunity in Green IT?

35) Define Community Clouds.
36) What is virtual machine?
37) Explain private clouds.
38) What is Role of a Data Scientist?
39) Why is Machine Learning important?
40) Define Multitenancy.

Q3 A) Attempt any two of the following (10)

1) Explain Life Cycle of a Device.
2) Explain Examples of Machine Learning Problems.
3) Difference between Data science vs BI.
4) What is Energy-Saving Software Techniques?
5) Explain Examples of Machine Learning Problems.
6) What is benefits and uses of Data Science.
7) What are the Core Components of Hadoop?
8) Discuss in brief about Cloud economics and benefits.
9) What is Big Data and where it is produced?
10) Role of Data Scientist.

Q3 B) short note solve (06)

1) What is Energy-Saving Software Techniques?
2) What are the applications of machine learning?
3) What is Machine Learning? Describe Training versus Testing in details.
4) Write comparative notes on Hadoop vs Traditional systems.
5) Write the note on Green Software.

Q4 A) attempt any two of the following. (08)

1) What are the Core Components of Hadoop?
2) Explain HDFS Architecture.
3) What is Cloud deployment model?
4) Explain 3rs.
5) Explain Master – Slave Architecture.
6) What are the attributes of big data? Explain.
7) Differentiate training with testing.
8) Explain the concept of cloud deployment model.
9) Explain applications of Big Data.
10) Explain Burden or Opportunity in Green IT?

Q4 B) Describe /explain /solve (08)

1) Explain IoT Frameworks.
2) Explain in detail the working, benefits and uses of Data Science.
3) Write the notes on Statistical modeling and Probabilistic distribution in data science.
4) Explain in details the architecture of IOT and applications of IOT.
5) What is Virtual Machines? Explain Architecture of Virtual Machines in detail.

Q5) attempt any two of the following. (16)

1) What is types of Virtualization?
2) What is IoT Architecture?
3) Difference between Training versus Testing.
4) What are the Environmental impacts of IT and explain the Holistic Approach to Greening IT.

5) What do you mean by virtualization? Explain in details about Virtualization technologies and architectures.
6) Discuss the challenges of big data analysis, machine learning and cloud computing.
7) Explain limitations and solutions of existing Data Analytics Architecture.
8) Explain in detail HDFS Architecture.
9) What are the Predictive and descriptive tasks in machine learning?
10) Explain Cloud Deployment Models in detail.

B.C.A. (Semester - VI) (New) (CBCS) Examination March/April-2022
CRYPTOGRAPHY AND NETWORK SECURITY
Question Bank

Total Marks:80

Q. 2) Solve any of the following. (2 Marks)

1) Define cryptanalysis.
2) What is Security service?
3) Define the term Attacks
4) Specify the components of encryption algorithm
5) Write the Two security Protocols.
6) What is block cipher?
7) What is mean by Email?
8) Define Secret key
9) What is Primality Testing?
10) What is stream cipher?
11) What is Cryptography?
12) Define Cipher text
13) List three monoalphabetic cipher
14) What is Decryption algorithm?
15) What is mean by DES Function?
16) Define threat
17) List six Security Attacks.
18) Specify four categories of security threats
19) What is mean by Firewalls?
20) What is brute-force attack?
21) What is mean by password?
22) List the types of cryptanalysis attack
23) What is Interception?
24) Define Steganography.
25) What is Fabrication?
26) Define Key size
27) What is permutation?
28) Give 5 modes of operation in block cipher
29) List out the attacks to RSA
30) What is traffic padding?
31) What is message authentication?
32) What you meant by hash function?
33) List any three hash algorithm.
34) What is digital signature?
35) What are the properties a digital signature should have?
36) Define Kerberos.
37) What 4 requirements were defined by Kerberos?
38) Define virus.
39) List the design goals of firewalls?

40) Give SSL record format?
41) What is the need for authentication applications?
42) What is worm?
43) What is a trusted software?
44) What is intruder?
45) List the limitations of SMTP.
46) Define S/MIME.
47) What are the services provided by PGP services?
48) What does Internet key management in IPsec?
49) List password selection strategies.
50) What is E-mail?

Q. 3) A) Attempt any Two of the following. (5 marks) (10)

1) Explain the Structure and Analysis of DES.
2) Distinguish between passive and active attacks.
3) Write a need for security in details.
4) Explain the architecture of IP Security.
5) What is Additive Cipher? Use the additive cipher with key = 15 to encrypt the message "hello".
6) Describe about SSL/TLS Protocol.
7) Explain the technical details of firewall and describe any three types of firewall.
8) Explain in detail Hash Functions.
9) Explain in detail EIGamal Public key cryptosystem
10) Explain services provided by IPSec.
11) Differentiate MAC and Hash function?
12) Explain the architecture of IP Security.
13) Explain Double &Triple DES with keys.
14) Mention the strengths and weakness of DES algorithm.
15) Explain Intrusion detection.

Q. 3) B)

1) Write a Short note on Cryptographic attacks. (6 marks)
2) Write Short notes on S/MIME.
3) Write brief note on E-mail Security.
4) Write short notes on block cipher modes of operation
5) Write short note on transposition techniques.

Q. 4 A) Attempt any Two of the following. (4 marks) (08)

1) Write the use of smart card and Biometrics.
2) Write the use of Block Ciphers.
3) Explain Secure Electronic Transaction.
4) Explain symmetric Key Cryptography
5) Explain RSA Cryptosystem.
6) Distinguish between a Block cipher and Stream Cipher.
7) Explain Security Services in Detail.
8) Explain services provided by IPSec.
9) Explain types of firewalls.
10) Explain the Security Goals in detail.
11) Explain polyalphabetic substitution cipher with its types in detail.

12) Write the use of Stream Ciphers.
13) Explain in detail about various types of attacks.
14) Explain the Digital Signature in detail.
15) Explain the SSL Message Formats.

Q. 4)B) (8 Marks)

(08)

1) Explain the Process and Services of the Digital Signature in detail
2) Explain the PGP and S/MIME in detail.
3) Explain Security mechanisms in details.
4) Explain Asymmetric Key Cryptography.
5) What is mean by SSL? Explain SSL Architecture in network security.

Q. 5) Attempt any Two of the following.(8 Marks) (16)

1) Explain the Structure and Analysis of DES
2) Explain the Rabin Cryptosystem in detail.
3) Explain the PGP and S/MIME in detail.
4) What is meant by Ciphers? Explain the types of ciphers.
5) Distinguish between a substitution cipher and Transposition Cipher.
6) Explain the AES Ciphers in details.
7) Explain the security services and mechanisms in detail.
8) Explain Types of Security attacks in details.
9) What is mean by SSL? Explain SSL Architecture in network security.
10) Distinguish between symmetric Key Cryptography and Asymmetric Key Cryptography
11) Explain the Process and Services of the Digital Signature in detail.
12) Explain IDEA in Details.
13) Distinguish between MD5 and SHA-512.
14) What is meant by Digital Signature? Explain Attacks on Digital Signature.
15) What is E-mail security? Explain network security.

B.C.A. (Semester - VI) (New) (CBCS) Examination March/April-2022

PYTHON Programming

Question Bank

Total Marks:80

Q. 2) Solve any Eight of the following. (2 Marks) (16)

1) Give the various data types in Python
2) Point out different modes of file opening
3) How to import statement?
4) What is collection?
5) What is method?
6) What is class?
7) Define python
8) What is python interpreter?
9) Compose the importance of indentation in python.
10) What is GUI?
11) Define read and write file.
12) What is module?
13) What is script mode?
14) Give the operator precedence in python.
15) Explain Global and local variable.
16) What is meant by value in python?
17) What is tuple?
18) What is interface?
19) what are expressions?
20) Define anonymous function?
21) What is list?
22) What is File?
23) Define dictionary with syntax?
24) Define the syntax for passing arguments.
25) What is operator?
26) Write the syntax of if and if-else statements.
27) Give the reserved words in Python

28) What is Exception?
29) What is object?
30) What is command line window?
31) What is root window?
32) Write various mode of file.
33) What is formal parameter?
34) What is constructor?
35) Discuss about continue statements.
36) What is the use of PVM?
37) What is the use of str.upper() and str.lower() functions in string?
38) Write the syntax and usage of while loop
39) What is Thread in Python?
40) Explain variable with syntax?
41) What is the use of comparison operator?
42) Define array with an example.
43) What is docstring?
44) How to Select an Element from a List?
45) What are the list operations?
46) Discuss about pass statements.
47) Illustrate the flow chart of if-elif- else statements.
48) What is multiline statement?
49) What is the use of dir() function?
50) What will be the output of print str[2:5] if str='hello world!'?

Q. 3) A) Attempt any Two of the following. (5 Marks) (10)

1) What are the two types of files? Explain different file operations.
2) Differentiate List and Tuple in Python.
3) Explain Lambda function with a suitable example.
4) Write a program to check given number is Armstrong or not.
5) Explain different types of comments in python
6) What are the key features of Python?
7) Explain Input and output statements in python.
8) What is String and explain any five methods of string with example.
9) Explain Interpreter & Interactive mode in Python.
10) Write a python program to count the number of words in a text file
11) Write a Python program to compute the factorial of a given number using recursion.
12) Discuss Function arguments in Python.
13) Explain the concept of Exception Handling in Python with suitable program.
14) Explain the features of python.

15) Explain Various String functions used in python

Q. 3) B) (6 Marks)

1) Write a Short note on Time Module.
2) Write a Short note on manipulating of dictionaries.
3) Write a Short note on Overriding Super Class Constructors.
4) Write a Short note on command line window.
5) Write a Short note on User-defined Exceptions.

Q. 4 A) Attempt any Two of the following. (4 Marks) (08)

1) What is root window? Give example with output.
2) Write a program to insert employee information such eid, ename, salary, etc into employee Table.
3) Write a Steps to Installing MySQLdb in python.
4) Explain Types of Exceptions with example.
5) Write a program to check given year is leap or not.
6) Define module. Explain the importing module with example.
7) Explain types of thread with example.
8) Difference between a Function and a Method
9) Explain math module with example.
10) What is Array? Explain types of array in python.
11) Explain Indexing and Slicing operation for string manipulation with example in python.
12) Write a Python program which will throw exception if the value entered by user is less than zero.
13) Differentiate Abstract class and interface with example.
14) Write a program to check given number is prime or not.
15) Write a program to implement types of Inheritance

Q. 4)B). (8 Marks) (08)

1) Write a program to manipulate strings like string copy, string concatenation, string comparison.
2) Create a class Employee with data members: name, department and salary. Create suitable methods for reading and printing employee information.
3) What is exception? Explain types of exception.
4) Write a program to implement Method Overloading.
5) What is module? Explain Creating & exploring modules.

Q. 5) Attempt any Two of the following. (8 Marks) (16)

1) Write a program to implement a student class with five-member variables and with at least two methods to get and set values.
2) Explain any four methods for regular expression with proper example.
3) Write a program to drawn the following shapes on canvas:
    a. i)circle ii)square iii)rectangle iv) line
4) Explain Geometry management with example.
5) b) What is String and explain any five methods of string with example.
6) Write a Python GUI program to create three push buttons using Tkinter. The background color of frame should be different when different buttons are clicked.
7) Explain regular expression with example.
8) Explain Tuples, Lists and Dictionaries with example.
9) Differentiate Method Overloading and Method Overriding with example.
10) What is Function? Explain Types of functions in details.
11) Explain various keywords to handle exception with Example.
12) What is root window? Explain any five widgets with example.
13) Which are the different types of operators in python language? Explain membership and identity operators with examples.
14) Write a program to count number of words, lines and characters which is stored into file.
15) Write a python program to implement isPalindrome() function to check given string is palindrome or not.

BCA-III (Semester –VI) Examination, Mar/April- 2022
Advanced Java (w.e.f.June-2021)

Course Code: Paper XIV

QUESTION BANK **Max.Marks:80**

Q.2) Two marks Questions.

1) What are Servlets?
2) Define cookies.
3) Define Session.
4) What are servlet filter.
5) What is Session Tracking?
6) How much data we can store in a session object?
7) What is URL rewriting?
8) When servlet object is created?
9) What are the methods of HttpServlet?
10) What is difference between Cookies and HttpSession?
11) What are JSP Output Comments?
12) Define JSP.
13) What are the JSP implicit objects?
14) Define JSP Scriptlet.
15) What is JSTL?
16) Give the use of exception object.
17) What is the purpose of <jsp:useBean>?
18) How can we forward the request from JSP page to the servlet?
19) What are the three tags used in JSP bean development?
20) What is Internationalization
21) What is the Spring Framework?
22) What is the configuration file for Spring?
23) What are the different components of a Spring application?
24) What is dependency injection?
25) What is Spring IOC Container?
26) In how many ways can Dependency Injection be done?
27) List some of the benefits of IoC.
28) What is JdbcTemplate?
29) What are the ways to access Hibernate by using Spring?
30) What is ORM in Hibernate?
31) What is a Session in Hibernate?
32) What is a Session Factory?
33) How do you create an immutable class in hibernate?
34) What is HQL?

35) What are the two types of collections in hibernate?
36) Which one is the default transaction factory in hibernate?
37) What are the technologies that are supported by Hibernate?
38) What are the databases that hibernate supports?
39) What are the types of hibernate instance instance states ?
40) What are the benefits of using Hibernate template?

Q.3) A) 5 Marks Questions.

1) What are the differences between HttpServlet and GenericServlets?
2) Differentiate between doGet and doPost method?
3) Explain Advantages of servlet.
4) List out some advantages of using JSP.
5) Explain the steps for creating custom tags in JSP?
6) Explain JSP tag elements.
7) Explain java bean with get property and set property.
8) What are the benefits of Spring?
9) What are the advantages of Hibernate over JDBC?
10) Differentiate between save() and saveOrUpdate() methods in hibernate session.

B) 6 Marks Questions.

1) Write an program for a servlet generate plain text.
2) Explain the Basic servlet structure
3) Difference between JSP and Servlet.
4) What is the difference between constructor injection and setter injection?
5) What is the difference between first level cache and second level cache?

Q.4)A) 4 Marks Questions.

1) Explain features of servlet.
2) Difference between forward() method and sendRedirect() method ?
3) Difference between Servlet and CGI.
4)What is the difference between include directive and include action?
5) Explain the advantages and disadvantages of Javabean.
6) Explain JSTL core Tags.
7) Explain JSTL xml tags.
8) Write a program for date and time using JSP.
9) What bean scopes does Spring support?
10) What are the different bean scopes in spring?

Q.4) B) 8 Marks Questions.

1) What are the different types of session tracking?
2) Explain JSP architecture.
3) Explain response implicit object with example.

4) What is hibernate caching?Explain types of hibernate caching.
5) Explain collection mapping by set and by map with example.

Q.5) 8 Marks Questions.

1) Explain servlet life cycle.
2) Explain URL rewritten with advantages and disadvantages.
3) Explain use of cookies with example.
4) Explain life cycle of JSP.
5) Explain request implicit object with example.
6) Explain out and page implicit object with example.
7) Which are the Spring framework modules?
8) Explain Hibernate architecture
9) Explain collection mapping by list and by bag with example.
10) Explain Hibernate Inheritance Mapping .

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BCA II Sem III (w.e.f. June 2020)

Web Development using PHP

Time: 2hrs **Question Bank** **Total marks:40**

Q. No.1) Multiple choice questions (08)

Q.No.2) Answer any four of the following (08)

1) What is basic syntax of PHP?
2) Require () function.
3) History of MYSQL
4) List out different functions used for comparing string with example.
5) MYSQL data types.
6) History of PHP.
7) What is Variables in PHP?
8) Include () function.
9) Explain Static website.
10) Explain any four date and time function with example.
11) How data type of variable are tested? Explain with example.
12) What is multidimensional array? Explain with example.
13) Explain If statement.
14) Explain Dynamic website.
15) Explain Constants in PHP.
16) Difference between Echo () and print () statement.
17) Explain trim() function.
18) Explain ksort() function.
19) What is arithmetic operators?
20) What is Concatenation operators?

Q.No.3 A) Write short notes on any two of the following (08)

1) Explain different operators used in PHP.
2) What is function? types of function
3) What is cookie?
4) Explain different forms controls, its properties, methods and events.
5) Write note on passing arguments to a function by reference.
6) What is array? Types of arrays with example.
7) What is PHP looping?
8) Explain Data Types in MySQL.
9) Explain global variables in PHP.
10) What is basic regular expressions?
11) Explain encoding and decoding session variables.
12) Explain Working with PHP-MySQL.
13) Explain WebServers.
14) Difference between Client Side Vs Server Side Scripting.
15) What is indexed & associative array?

Q. No.4) Answer any Two of the following (08)

1) Explain client side validation
2) Explain Server side validation.
3) Explain different parameter passing technique used in PHP with example. .
4) Explain different sorting techniques of arrays with proper examples.
5) Difference between Static website vs Dynamic website development.
6) What is Control statements in PHP.
7) Differentiate between session and cookies.
8) Explain $_GET and $_POST variable.
9) Explain different parameter passing technique.
10) Write note on comparing and joining strings.

Q.No.5) Answer any one of the following (08)
1) Design web page which insert, delete and update records.
2) Explain MySQL Architecture in detail
3) What is Session? Explain session state management in detail.
4) Explain different sorting techniques of arrays with proper examples.
5) Write a program to accept the password through HTML and validate it with PHP regular expression. Print the message “Strong password” if the password has at least one digit, one lower case letter and one uppercase letter else print “reenter the password”.