Seat No.

B.C.A. (Semester - II) (New/Old) (CBCS) Examination: October/November – 2025
English (Comp.)
Communication Skill (BCA1201)

Day & Date: Thursday, 13-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

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

Q.1 Multiple Choice Questions: **08**
   1) Write is the honourable part of discourse?
      a) to give opportunity   b)   to talk
      c) to listen   d)   to lead

   2) What is robust and in contact with facts to?
      a) plutocrats   b)   eminence
      c) real virtue   d)   education

   3) Whose cruelty is the ugliest in its ferocity?
      a) fictators   b)   racists
      c) conservatives   d)   cowards

   4) Who has lynched the lakes?
      a) The poet   b)   Factories
      c) Vehicles   d)   Humans

   5) How old is pope believed to be when he wrote "Ode on Solitude"?
      a) 11   b)   12
      c) 13   d)   14

   6) What does the poet want the lover to do?
      a) Move on   b)   Grieve
      c) Be happy   d)   Find someone else

   7) It was not a _____ structure(temporary)
      a) Temporary   b)   temperature
      c) tempo   d)   None

   8) The mechanic _____ (repair) the car.
      a) Repair   b)   repaired
      c) Both a & b   d)   None of these

Q.2 Answer the following. (Any four)   **12**
    a) What is the main desire in a discourse?
    b) What kind of men made the age we live in?
    c) What has affected the psychology of the people? And how?
    d) What was the kings made to understand in the old world?
    e) What is the true sense of freedom?
    f) Discuss the theme of the poem "Our Earth will Not Die". ?

Q.3 a) Write an application for Post of Software Developer.   **10**
                                     OR
    b) Write a letter to purchase 10 computers for your college.

Q.4 a) What is interpersonal Intelligence? Explain eight forms of   **10**
              intelligence?

Seat No.	

**B.C.A. (Semester - II) (New/Old) (CBCS) Examination:
October/November – 2025
Introduction to Python Programming (BCA1202)**

Day & Date: Friday, 14-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

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

Q.1 Multiple Choice Questions.   **08**

1) What is used for multi-line strings in Python?
    a) Three braces {{{ }}}   b) Three Colons ::: :::
    c) Three hashes ### ###   d) Three Quotes''' '''

2) What will be the output after the following statements?
x = 30
y = 7
x %= y
print(x)
    a) 4   b) 28
    c) 2   d) 37

3) In Python, lists are mutable. It means that _____.
    a) The contents of the list can be changed after it has been created
    b) The contents of the list can't changed after it has been created
    c) The list cannot store the number data type.
    d) None of the above

4) All keywords in Python are in _____
    a) Capitalized   b) lower case
    c) UPPER CASE   d) None of the mentioned

5) Which of the following is not a core data structure in Python?
    a) List   b) Module
    c) Dictionary   d) Tuple

6) Which of the following is an assignment operator in Python?
    a) ==   b) ===
    c) >>>   d) =

7) In dictionary keys and values are separated by _____
    a) Comma (,)   b) Semicolon (;)
    c) Colon (:)   d) None of the above

8) Which of the following is used to enclose strings?
   a) Single quotes
   b) Double quotes
   c) Either single quotes or double quotes
   d) ! symbol

Q.2 Answer the following. (Any Four) 08
   a) Write the syntax of if and if-else statements.
   b) Define word indentation.
   c) Define String.
   d) Give the various data types in Python.
   e) Write down syntax and example of center () Method.
   f) Define return statement.

Q.3 Write short notes. (Any Two) 08
   a) Explain Operator precedence and associativity in detail.
   b) Write a program to check given number is even or odd.
   c) What is Tuple? Explain any six methods of Tuple with example.

Q.4 Answer the following. (Any Two) 08
   a) What is List? Explain any 6 methods of List with example.
   b) Write a program to check given number is Armstrong or not.
   c) Explain any eight features of python.

Q.5 Answer the following. (Any One) 08
   a) What are the different types of conversion? Explain with example.
   b) What is dictionary? Explain various operations in a dictionary with example.

Seat No.

Set **P**

B.C.A. (Semester - II) (New/Old) (CBCS) Examination: October/November – 2025
Operating System (BCA1203)

Day & Date: Saturday, 15-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) Draw neat diagrams and give equations wherever necessary.
2) Figures to the right indicate full marks.
3) Use of log table and calculator is allowed.

Q.1 Multiple Choice Questions.   **08**

1) What is the most used computer operating system?
a) Linux   b) Windows
c) Chrome os   d) Android

2) Who among the following can block the running process?
a) Fork   b) Read
c) Down   d) All of these

3) Which of the following does not interrupt the running process?
a) Timer interrupt   b) Device
c) Power failure   d) Scheduler process

4) What type of scheduling is round-robin scheduling?
a) Linear data scheduling   b) Non-linear data scheduling
c) Preemptive scheduling   d) Non-preemptive scheduling

5) In Operating Systems, which of the following is/are CPU scheduling algorithms?
a) Priority   b) Round Robin
c) Shortest Job First   d) All of the mentioned

6) What is a Process Control Block?
a) Process type variable   b) Data Structure
c) A secondary storage section   d) A Block in memory

7) A process which is copied from main memory to secondary memory on the basis of requirement is known as _____
a) Demand Paging   b) Paging
c) Threads   d) Segmentation

8) What is an operating system?
   a) collection of programs that manages hardware resources
   b) system service provider to the application programs
   c) interface between the hardware and application programs
   d) all of the mentioned

Q.2 Answer the following. (Any Four) 08
   a) What is monolithic system?
   b) What is process?
   c) What is kernel?
   d) Define Co-operating process?
   e) What is Scheduling?
   f) Define Race conditions?

Q.3 Write Short Notes. (Any Two) 08
   a) Explain process life cycle?
   b) Explain Monolithic and layered system.
   c) Explain system components?

Q.4 Attempt the following. (Any Two) 08
   a) Explain types of Thread?
   b) Explain process scheduling criteria?
   c) Solve the next example FCFS (First come first serve) scheduling algorithm.
   Consider the processes P1, P2, P3, P4 given in the below table, arrives for execution in the same order, with given Arrival Time and Burst Time.
   Calculate average Turnaround Time and average waiting Time.

Process	Arrival time	BURST TIME
P1	0	8
P2	1	4
P3	2	9
P4	3	5

Q.5 Attempt the following. (Any One) 08
   a) Explain Types of Operating system?
   b) Explain reader-Writer problem?

Seat No.

B.C.A. (Semester - II) (New/Old) (CBCS) Examination: October/November - 2025
Programming and Problem Solving using 'C' - II (BCA1204)

Day & Date: Monday, 17-11-2025　　　　　　　　　　Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
　　　　　　　2) Draw neat diagrams and give equations wherever necessary.
　　　　　　　3) Figures to the right indicate full marks.
　　　　　　　4) Use of log table and calculator is allowed.

Q.1　Choose correct alternatives: (MCQ)　　　　　　　　　　　08

1) What is the primary difference between structure and union?
　　a)　Structure allows nested members
　　b)　Union allows nested members
　　c)　Structure allows multiple members
　　d)　Union allows only one active member

2) What is the purpose of the calloc() function in C?
　　a)　Allocate memory on the stack
　　b)　Allocate memory on the heap
　　c)　Allocate memory for a function
　　d)　Allocate memory for an array of variables

3) In 'C', what is the purpose of 'void' keyword as a function return type.
　　a)　It specifies that a function doesn't return a value
　　b)　It specifies that a function returns an integer value
　　c)　It specifies that a function returns a character value
　　d)　It specifies that a function is recursive

4) How the size of a union is determined in 'C'?
　　a)　By the total size of its members
　　b)　By the size of its largest member
　　c)　By the number of members
　　d)　None of thee

5) Any 'C' program ____.
　　a)　must contain at least one function
　　b)　need not contain any function
　　c)　needs input data
　　d)　none of these

6) When should you use a structure instead of an array in 'C'?
    a) When you need to store elements of different data types
    b) When you need a fixed-size collection of elements
    c) When you need a dynamic collection of elements
    d) When you need to perform a mathematical operation

7) What is the function primarily used for?
    a) Decision making
    b) Variable declaration
    c) Code organization and reusability
    d) printing output

8) What is the purpose of -> operator in C when used with pointers?
    a) Arithmetic operator   b) Indirection operator
    c) Member access operator   d) Bitwise operator

Q.2 Answer the following. (Any Four)   **08**
    a) Differentiate between scanf() and sscanf().
    b) What is the need of a function?
    c) Define recursion.
    d) What is function prototype?
    e) What is the use of extern storage class?
    f) State the functions used for dynamic memory allocation.

Q.3 Write Short Notes. (Any Two)   **08**
    a) Types of user defined function.
    b) Features of C-preprocessor.
    c) Pointer to structure.

Q.4 Answer the following. (Any Two)   **08**
    a) Write a program to reverse a given number using function with argument and return a value.
    b) Differentiate between local and global variable.
    c) Write a program to show pointer to structure.

Q.5 Answer the following. (Any One)   **08**
    a) What is File? What are the various modes in which a file can be opened?
    b) Explain structure and union in 'C' with example.

**B.C.A. (Semester - II) (New/Old) (CBCS) Examination:
October/November – 2025
Web Programming – II (BCA1205)**

Day & Date: Tuesday, 18-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of log table and calculator is allowed

Q.1   Multiple Choice Question: 08

1)   JavaScript objects are containers for named values called properties
or methods.
   a) True   b)   False

2)   The "function" and " var" are known as: ____.
   a) Keywords   b)   Data types
   c) Declaration statements   d)   Prototypes

3)   JavaScript functions are defined with the _____ keyword.
   a) Var   b)   def
   c) function   d)   none

4)   Which of the following methods can be used to display data in some
form using JavaScript?
   a) document. Write()   b)   console.log ()
   c) window. alert()   d)   All of the above

5)   Which jQuery function is used to select elements by tag name?
   a) .getElement()   b)   .select ()
   c) .$()   d)   .query ()

6)   In the JavaScript, which one of the following is not considered as an error:
   a) Syntax error   b)   Missing of semicolons
   c) Division by zero   d)   Missing of Bracket

7)   Which of the following function of the String object returns the
character in the string starting at the specified position via the
specified number of characters?
   a) slice()   b)   split()
   c) substr()   d)   search ()

8) Which one of the following operators returns false if both values are equal?

   a) !   b) ! ==

   c) ! =   d) All of the above

Q.2 Answer the following: (Any Four)   **08**
   a) Explain any two jQuery Effects.
   b) Explain any two built in function in JavaScript.
   c) Explain jQuery Syntax.
   d) Explain jQuery Callback Functions.
   e) Explain jQuery CSS () Method

Q.3 Write short notes. (Any Two)   **08**
   a) Explain jQuery. Explain Need of jQuery.
   b) Explain data types of JavaScript with example.
   c) Explain Chaining in jQuery with example.

Q.4 Answer the following. (Any Two)   **08**
   a) Write JavaScript code to implement alert.
   b) Explain any one control structure in JavaScript with example
   c) Explain jQuery - The no Conflict () Method

Q.5 Answer the following. (Any One)   **08**
   a) Explain JavaScript Language. Explain features of JavaScript Language.
   b) Explain jQuery Event Methods.

B.C.A. (Semester - II) (New/Old) (CBCS) Examination:
October/November – 2025
Graph Theory (BCA1206)

Day & Date: Wednesday, 19-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams wherever necessary.
3) Figures to the right indicate full marks.

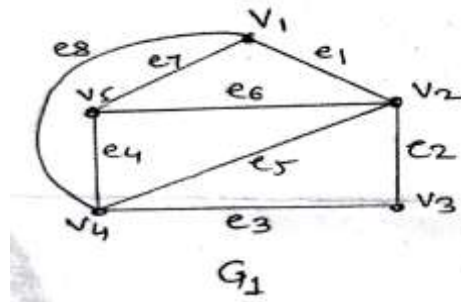**Q.1   Multiple choice questions:**   **08**
1)   The edges of G which are included in the spanning tree T are called
_____ of T.
a) Branches   b)   Chord
c) Rank   d)   Isthmus

2)   A walk in which no vertex is repeated is called as _____
a) Traill   b)   Path
c) Circuit   d)   Tour

3)   _____ is a particular case of the Hamiltonian graph.
a) Chinese Postman Problem
b) Traveling Salesman Problem
c) Kruskal's Algorithm
d) Seven Bridge Problem

4)   The number of edges in complete graph Km.
a) $m(m-1)/2$ b) m
c) $m-1$ d) $m+1$

5)   In Chinese postman problem the parallel edge is added along the shortest
path between____.
a) Two even degree vertices   b)   Two odd degree vertices
c) Both A and B   d)   None of these

6)   A tree is an _____ graph.
a) acyclic connected   b)   cyclic connected
c) Connected   d)   Eulerian

7)   Order of the Incidence matrix of a graph with 4 vertices and 6 edges
is _____.
a) 4x4   b)   4x6
c) 6x4   d)   6x6

8) The complement of the null graph is _____.
  a) Regular   b)   Simple
  c) Complete   d)   Bipartite

Q.2 Answer the following. (Any Four)   **08**
  a) Define connected and disconnected graphs.
  b) Define Eulerian graph.
  c) Define degree of a vertex & find total degree of a graph.

G_1

  d) Draw a graph which is neither Eulerian nor Hamiltonian.
  e) Define bipartite graph.
  f) Define vertex connectivity.

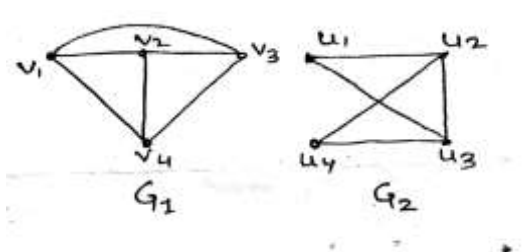**Q.3 Write Short Notes. (Any Two)**   **08**
  a) State and prove Hand shaking lemma.
  b) Explain the Chinese postman problem.
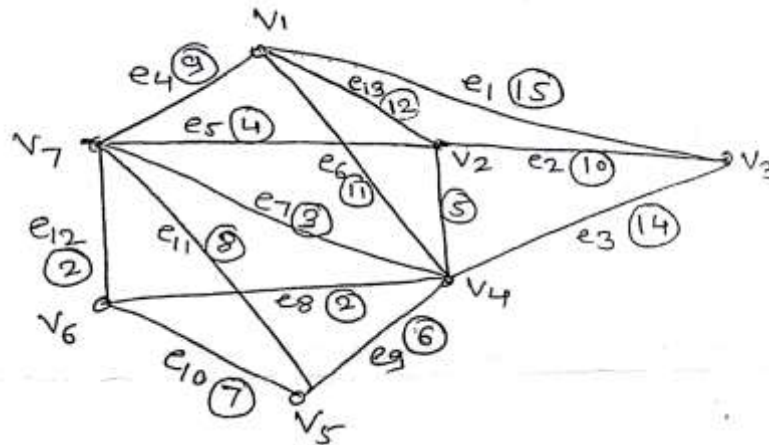 **c)** There is one and only one path between every pair of vertices.

Q.4 Answer the following. (Any Two)   **08**
  a) From the following graph, find $G_1 * G_2$.

G_1 G_2

  b) For the following graph by using Kruskal's algorithm find the shortest spanning tree.
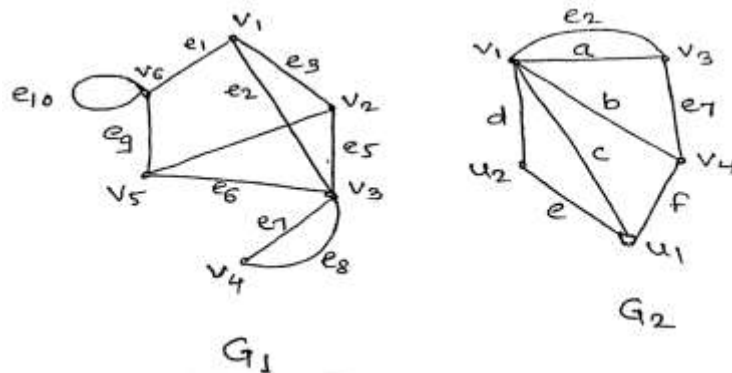
c) A graph G with n vertices and n-1 edges, prove that G has either a vertex of degree one or an isolated vertex.
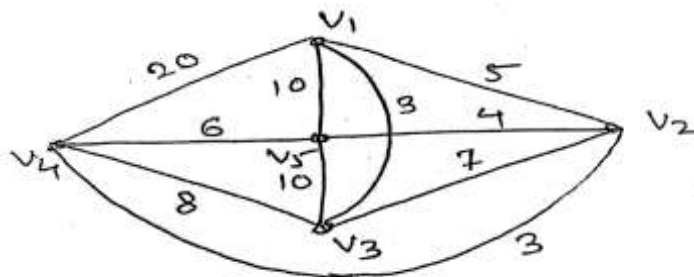
Q.5 Answer any one of the following   **08**

a) Find adjacency matrix for graph G_1 & G_2 and also draw the graphs $G_1 \cup G_2$ and $G_1 \oplus G_2$.

b) Starting with a vertex 'v_1' solve the traveling salesman problem. Also find the minimum distance traveled.

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B.C.A. (Semester - II) (New/Old) (CBCS) Examination: October/November - 2025
Probability Theory (BCA1207)

Day & Date: Thursday, 20-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
             2) Figures to the right indicate full marks.
             3) Use of calculator is allowed.

Q.1   Choose the correct alternatives from the options.   **08**

  1) In how many different ways can the letters of the word 'BLOOD' be arranged?
     a) 60   b) 120
     c) 240   d) None of these

  2) If an unbiased coin is tossed twice, the probability of obtaining at least one head is _____.
     a) 0.25   b) 0.50
     c) 0.75   d) 1

  3) Probability always lies between _____.
     a) 0 to 1   b) -1 to +1
     c) 1 to 2   d) None of these

  4) An event containing only one element is called _____.
     a) Impossible   b) Elementary Event
     c) Sure   d) None of these

  5) The Poisson distribution have _____.
     a) Mean = Variance   b) Mean ≠ Variance
     c) Mean > Variance   d) None of these

  6) A variable that can assume any possible value between two points is called ____.
     a) Discrete r.v.   b) Continuous r.v.
     c) Independent r.v.   d) None of these

  7) If $X \to U(-2, 3)$, then variance is _____.
     a) 25/12   b) 28/12
     c) 27/12   d) None of these

  8) The shape of normal curve is _____.
     a) triangular   b) bell shaped
     c) rectangular   d) All of these

Q.2 Answer the following. (Any Four)   **08**
   a) In how many ways 2 balls are selected from 4 balls?
   b) Write the sample space for the experiment of rolling two dice simultaneously.
   c) Define - Poisson distribution.
   d) Given: $P(A) = 0.6, P(B) = 0.5, P(A \cap B) = 0.3$ Find $P(A \cup B)$.
   e) Define Mathematical expectation of continuous random variable.
   f) If $X \to U(-2, 5)$ find mean and variance of uniform distribution.

Q.3 Write Short Notes. (Any Two)   **08**
   a) Additive property of Poisson and binomial distribution.
   b) Define independent events. Suppose A and B independent then prove A' and B' also independent.
   c) Define normal distribution give its two properties.

Q.4 Answer the following. (Any Two)   **08**
   a) The p.m.f. of X is as follows:

X	1	2	3	4	5	6
P(x)	1/6	1/6	1/6	1/6	1/6	1/6

   Find i) $E(x)$ ii) $E(4x + 5)$
   b) If pair of unbiased coins is tossed, obtain probability of occurrence of
   i) both heads ii) single head iii) at least one head
   c) Verify whether following function is p.d.f. or not
   $$f(x) = 4X^3 \qquad 0 < X < 1$$
   $$\qquad\quad 0 \qquad\qquad \text{otherwise}$$

Q.5 Attempt the following. (Any One)   **08**
   a) Define Events and explain three types of events.
   b) The p.m.f. of discrete r.v. X is

X	0	1	2	3	4
$P(x)$	k	3k	5k	2k	k

   i)   Find Value of k.
   ii) $P(X < 3)$
   iii) $P(X \geq 2)$
   iv) $P(X \leq 1)$

Seat No.

B.C.A. (Semester - II) (New/Old) (CBCS) Examination:
October/November - 2025
Digital Fundamentals of Computer (BCA1208)

Day & Date: Friday, 21-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of log table and calculator is allowed
(At. Wts: H=1, C=12, O=16, N=14, Na=23, Cl=35.5)

Q.1 Select the correct alternatives from the options.   08

1) _____ univarsal gate
   a) x-or   b) not
   c) nand   d) and

2) wlen A=1 b=1 then out put of X-OR gate is
   a) 1   b) 10
   c) 0   d) 2

3) half adder consist of _____
   a) 3i/p 2 o/p   b) 2i/p 2o/p)
   c) 3i/p 1o/p   d) 3i/p 3o/p

4) compliment of 1010 is _____
   a) 0101   b) 1100
   c) both 1010   d) none

5) _____ is basic gate
   a) and   b) nand
   c) NOR   d) x-or

6) _____ called as data distributer.
   a) mux   b) dmux
   c) encoder   d) decoder

7) _____memory cell
   a) flip flop   b) dmux
   c) both A and b   d) none

8) lc 7432 is _____ gate
   a) OR   b) AND
   c) NAND   d) decoder

Q.2   Answer the following. (Any Four)   **08**
    a)   what is gate
    b)   Define shift register
    c)   Define half adder
    d)   Define counter
    e)   Define multiplexer
    f)   Define demultiplexer

Q.3   Write short notes of the following. (Any Two)   **08**
    a)   Explain SISO shift register
    b)   explain S-R flip flop
    c)   state application of mux

Q.4   Answer the following. (Any Two)   **08**
    a)   explain 1:4 DMux
    b)   Explain 2 line to 4 line encoder
    c)   state and prove De-Morgan's 1st theorem

Q.5   Answer the following. (Any One)   **08**
    a)   Define and explain full subtractor
    b)   Explain clocked JK flip flop

Seat No.	

B.C.A. (Semester - II) (New/Old) (CBCS) Examination: October/November - 2025
Introduction of Microprocessor and Interfacing (BCA1209)

Day & Date: Saturday, 22-11-2025　　　　　　　　　　Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
　　　　　　　　2) Draw neat diagrams and give equations wherever necessary.
　　　　　　　　3) Figures to the right indicate full marks.

Q.1　Select the correct alternatives from the options.　　　　　　08
　1) Data bus of 8085 is _____ Bit.
　　a) 8　　　　　　　　　　　b) 16
　　c) 32　　　　　　　　　　d) 64

　2) Address bus of 8085 is _____ Bit.
　　a) 8　　　　　　　　　　　b) 16
　　c) 32　　　　　　　　　　d) 64

　3) Pin number of 40 in 8085 Microprocessor is _____
　　a) VCC　　　　　　　　　b) RST
　　c) GND　　　　　　　　　d) RD

　4) _____ is control signal in 8085 microprocessor.
　　a) WR　　　　　　　　　　b) GND
　　c) VCC　　　　　　　　　d) None of these

　5) _____ is conditional instruction.
　　a) MOV　　　　　　　　　b) JMP
　　c) SUB　　　　　　　　　d) None of these

　6) Address bus in 8085 microprocessor is _____
　　a) unidirectional　　　　　b) Bidirectional
　　c) Both a and b　　　　　　d) None of these

　7) _____ is Logical instruction.
　　a) MOV　　　　　　　　　b) OR
　　c) PUSH　　　　　　　　　d) None of these

　8) Pin number of 9 in 8085 Microprocessor is _____
　　a) VCC　　　　　　　　　b) RST
　　c) GND　　　　　　　　　d) RD

Q.2 Answer the following. (Any Four)   08
   a) Define Microprocessor?
   b) Define Machine Cycle?
   c) Write note on Instruction Cycle?
   d) Write note on Reset Signal in 8085 Microprocessor.
   e) Write note on Cache Memory?
   f) Write note on System bus?

Q.3 Write short notes on the following. (Any Two)   08
   a) Write note on Addressing modes in 8085 Microprocessor?
   b) Write note on Associative Memory.
   c) Draw and Explain system bus architecture?

Q.4 Answer the following. (Any Two)   08
   a) Write down difference between I/O mapped I/O and memory mapped I/O.
   b) Explain Logical instruction in 8085 Microprocessor?
   c) Write down different features of 8085 Microprocessor.

Q.5 Answer the following. (Any One)   08
   a) Draw and Explain DMA Transfer?
   b) Draw and Explain Pin diagram of 8085 Microprocessor?

Seat
No.

B.C.A. (Semester - II) (CBCS) Examination:
October/November – 2025
Software Engineering – II (19409209)

Day & Date: Thursday, 13-11-2025   Max. Marks: 40
Time: 03:00 PM To 05:00 PM

Instructions: 1) All questions are compulsory.
             2) Draw neat diagrams and give equations wherever necessary.
             3) Figures to the right indicate full marks.
             4) Use of log table and calculator is allowed.
                 (At. Wts: H=1, C=12, O=16, N=14, Na=23, Cl=35.5)

Q.1 Multiple choice question.   **08**

1) _____ is the system element?
    a) Input   b) Process
    c) Output   d) All of these

2) A _____ is a set or group of component that interact to accomplish some purpose.
    a) System   b) Software
    c) Subsystem   d) Physical system

3) The system which are represented conceptually non Physical systems are called ____.
    a) Abstract system   b) System model
    c) Open system   d) Closed system

4) A waterfall model is also known as ____.
    a) Prototype model   b) Linear sequential model
    c) Iterative Model   d) None of the above

5) _____ is the father of Software Engineering?
    a) Margaret Hamilton   b) Watts S. Humphrey
    c) Alan Turing   d) Boris Beizer

6) _____is a software development activity that is not a part of software processes.
    a) Validation   b) Specification
    c) Development   d) Dependence

7) Which of the following document contains the user system requirements?
    a) SRD   b) DDD
    c) SDD   d) SRS

8) What is a Functional Requirement?
   a) specifies the tasks the program must complete
   b) specifies the tasks the program should not complete
   c) specifies the tasks the program must not work
   d) All of the mentioned

Q.2 Answer the following. (Any Four) 08
   a) What is a System analysis?
   b) What is boundary and environment?
   c) Write a four advantages of spiral model.
   d) Define fact finding technique.
   e) Define software Engineering.
   f) Write the characteristics of system

Q.3 Write short notes on the following. (Any Two) 08
   a) Interview.
   b) Waterfall Model.
   c) Correctness.

Q.4 Answer the following. (Any Two) 08
   a) Explain roles of system analyst.
   b) Explain the any four qualities of software.
   c) Explain System Development Life Cycle.

Q.5 Answer the following. (Any One) 08
   a) Explain prototyping model.
   b) Explain elements of system.

Seat No.

B.C.A. (Semester - III) (New) (CBCS) Examination: October/November – 2025
Object Oriented Programming using Java - I (BCA1301)

Day & Date: Tuesday, 04-11-2025 Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams wherever necessary.
3) Figures to right indicate full marks.
4) Use of log table and calculator is allowed

Q.1 Multiple Choice questions. 08

1) Which of the following is not a Java feature?
a) Object-oriented
b) Use of pointers
c) Portable
d) Dynamic and distributed

2) All exception classes inherit _____ class.
a) Exception
b) Error
c) Throwable
d) All of these

3) Which of these cannot be used for a variable name in Java?
a) Identifier
b) Keyword
c) Variable
d) none of the above

4) Which exception is thrown when dividing a number by zero?
a) IOException
b) ArithmeticException
c) NullPointerException
d) NumberFormatException

5) What is the parent class of all Java classes?
a) Object
b) Class
c) Abstract
d) Super

6) Which keyword is used to prevent method overriding?
a) Super
b) Const
c) Final
d) Static

7) Which of the following is true about constructor in Java?
a) It has a return type
b) It must have the same name as class
c) It is inherited
d) It cannot be overloaded

8) Which method of String class is used to compare two strings ignoring case?
a) equals()
b) compareTo()
c) equalsIgnoreCase()
d) compare()

Q.2 Solve the following. (Any Four)   **08**
    a) What is the use of break statement?
    b) What is command-line arguments?
    c) Write the difference between mutable and immutable object.
    d) What is the use of 'this' keyword.
    e) Define abstract class and interface.
    f) What is nested try block. Write its syntax.

Q.3 Attempt the following. (Any Two)   **08**
    a) Explain the different Features of Java.
    b) Explain the different String class methods.
    c) Write a program to create an integer array and display the square of each element of array.

Q.4 Attempt the following. (Any Two)   **08**
    a) Write a note on Access Specifiers in java.
    b) Define package. Explain how to create and import package.
    c) Write a program to demonstrate method overriding.

Q.5 Attempt the following. (Any One)   **08**
    a) What is inheritance? Explain the types on Inheritance with suitable example.
    b) Write a program to calculate the addition of two matrices.

Seat No.

Set **P**

B.C.A. (Semester - III) (New) (CBCS) Examination: October/November – 2025
Data Structure Using 'C' – I (BCA1302)

Day & Date: Thursday, 06-11-2025   Max. Marks: 40
Time: 09:00 AM To 11:00 AM

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

Q.1   Answer the following question by choosing the correct option provided.   **08**

1) A data structure is a _____ that is used to store and organize data
   a) Storage
   b) sql database
   c) oracle database
   d) None of these

2) ____ is a linear data structure and it is a collection of items stored at contiguous memory locations.
   a) Array
   b) Tree
   c) Both a and b
   d) None of these

3) ____ Stack is a linear data structure that follows a____order in which the operations are performed.
   a) LOFI
   b) OFIL
   c) LIFO
   d) FIFO

4) The data structure required to check whether an expression contains a balanced parenthesis is?
   a) Queue
   b) Stack
   c) Tree
   d) Array

5) The expression A + B * C would be written as _____ in prefix.
   a) +A*B C
   b) * + ABC
   c) *A+BC
   d) None of these

6) A Circular Queue is a linear data structure that follows the _____.
   a) LIFO
   b) FIFO
   c) FILO
   d) None of these

7) _____ Notation is a tool used to describe the time complexity of algorithms.
   a) Big O
   b) Infix
   c) Prefix
   d) All of these

8) _____ is a step-wise representation of a solution to a given problem.
    a) Data Structure   b)   Algorithm
    c) Linked List   d)   None of these

Q.2 Answer the following. (Any Four)   **08**
    a) What is an ADT?
    b) What is Infix expression?
    c) What is Postfix expression?
    d) What is Data structure?
    e) What are the operations that can be performed on a stack?
    f) Define Deque.

Q.3 Write short notes on the following. (Any Two)   **08**
    a) Characteristics of algorithm.
    b) One Dimensional array.
    c) Two-Dimensional array.

Q.4 Answer the following. (Any Two)   **08**
    a) Write the uses of greedy algorithm in Data Structure
    b) Write the difference between stack and queue
    c) Write a step-by-step illustration of infix expression A+B*C+D to convert prefix expression

Q.5 Answer the following. (Any One)   **08**
    a) What is Queue data structure? Explain Linear Queue, Circular Queue, and Deque (Double Ended Queue), with suitable diagram
    b) Write a program in c to Insert a node in singly linked list at beginning.

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Set **P**

B.C.A. (Semester - III) (New) (CBCS) Examination: October/November – 2025
Database Management System – I (BCA1303)

Day & Date: Friday, 07-11-2025   Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) figure to right indicate full marks.
3) Draw neat diagrams wherever necessary.
4) Non programmable calculator is allowed.

Q.1   Multiple Choice Question.   08

1) Which of the following is not Integrity Constraint?
   a) Primary Key   b) Not Null
   c) Check   d) Union

2) Where subqueries cannot be used?
   a) Field names in the SELECT statement
   b) The WHERE clause only in the SELECT statement
   c) The WHERE clause in SELECT as well as all DML statements
   d) The FROM clause in the SELECT statement

3) Generalization is a _____ process.
   a) Bottom – up   b) Top – Down
   c) Left – Right   d) None of the above

4) Schema definition is written by _____.
   a) Database Administrator   b) Database Application
   c) Storage Manager   d) Database Manager

5) TCL stands for: _____.
   a) Transaction control languages
   b) Transaction command languages
   c) Transaction connects languages
   d) None of the Mentioned

6) How many Primary keys can have in a table?
   a) Only 1   b) Only 2
   c) Depends on no. of Columns   d) Depends on DBA

7) An attribute is a _____ in a relation.
   a) Row   b) Column
   c) Value   d) Tuple

8) The term "Data independence" refers to _____.
   a) Data is defined separately and not included in the programs
   b) Programs are not dependent on the logical attributes of the data
   c) Programs are not dependent on the physical attributes of the data
   d) Both b) & c)

Q.2 Answer the following. (Any Four) 08
   a) What is meant by commit?
   b) List out the string function?
   c) State the difference between delete and truncate
   d) List out the components of DBMS.
   e) State the difference between DBMS and RDBMS.
   f) What is Join? List out the types of join.

Q.3 Write Short Notes. (Any Two) 08
   a) Having clause.
   b) 2 - tier and 3 - tier architecture.
   c) Specialization.

Q.4 Answer the following. (Any Two) 08
   a) Explain string and aggregate functions with example.
   b) Explain relational algebra operations.
   c) What is Database? Explain Database Structure.

Q.5 Answer the following. (Any One) 08
   a) What is Database Language? Explain database languages.
   b) What is Sequence? Explain sequence with example.

Seat No.		Set	**P**

B.C.A. (Semester - III) (New) (CBCS) Examination:
October/November – 2025
Software Engineering (BCA1304)

Day & Date: Saturday, 08-11-2025   Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
            2) Each question should only one correct option.

Q.1 Choose Correct Option.   **08**

1) A common approach to normalization is to _____ the larger table into smaller tables and link them together by using relationships.
   a) add   b) divide
   c) subtract   d) multiply

2) Problem identification done during _____ phase.
   a) System design   b) System testing
   c) System Analysis   d) All of These

3) In the _____ normal form, a composite attribute is converted to individual attributes.
   a) First   b) Second
   c) Third   d) Fourth

4) Data dictionary is also called as _____
   a) Catalog   b) Central repository
   c) Both a & b   d) None of these

5) A rectangle in a DFD represents _____.
   a) a process   b) a data store
   c) an external entity   d) an input unit

6) What does RAD stand for?
   a) Rapid Application Document
   b) Rapid Application Development
   c) Relative Application Development
   d) None of the above

7) Rocket is an example of _____ system.
   a) Man Made System   b) Natural System
   c) Adaptive system   d) None of these

8) Which is the system element?
   a) Input   b) Output
   c) Process   d) All of these

Q.2 Answer the following. (Any Four)   **08**
    a) What is decision tree?
    b) List roles of system analyst.
    c) Define interview.
    d) What is software?
    e) What is open system and closed system?
    f) Define normalization

Q.3 Write Short Notes on the following. (Any Two)   **08**
    a) Write a note on Agile.
    b) What is software requirement? Explain types of requirement.
    c) What is SQA? Explain tasks of SQA.

Q.4 Answer the following. (Any Two)   **08**
    a) Write a note on Quality of software.
    b) What is decision table? Explain types of decision table with example.
    c) Explain incremental approach to implementation in detail.

Q.5 Answer the following. (Any One)   **08**
    a) Explain different phases of System Development Life Cycle.
    b) What is ERD? Draw ERD for library management system.

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B.C.A. (Semester - III) (New) (CBCS) Examination: October/November - 2025
Web Development using PHP (SEC-1)

Day & Date: Monday, 10-11-2025   Max. Marks: 80
Time: 09:00 AM To 12:00 PM

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

Q.1 A) Choose the correct alternatives from the options.   **10**

1) Which of the following is the correct syntax to write a PHP code?
   a) <?php ?>   b) < php >
   c) < ? php ?>   d) < ? ?>

2) Which of the below statements is equivalent to $add += $add?
   a) $add = $add   b) $add = $add +$add
   c) $add = $add + 1   d) $add = $add + $add + 1

3) Which variable is used to collect form data sent with both the GET and POST methods?
   a) $_BOTH   b) $REQUEST
   c) $_REQUEST   d) $BOTH

4) What will be the output of the following PHP code?
   ```
   <?php
   $num = 1;
   $numl = 2;
   print $num . "+". $num1;
    ?>
   ```
   a) 3   b) 1+2
   c) 1.+.2   d) Error

5) Which one of the following functions will convert a string to all uppercase?
   a) strtoupper()   b) uppercase()
   c) Str_uppercase()   d) struppercase()

6) Which of the following PHP function will return true if a variable is an array or false if it is not an array?
   a) this_array()   b) is_array()
   c) do_array()   d) in_array()

7) POSIX stands for _____.
   a) Portable Operating System Interface for Unix
   b) Portable Operating System Interface for Linux
   c) Portative Operating System Interface for Unix
   d) Portative Operating System Interface for Linux

8) Which directive determines whether PHP scripts on the server can accept file uploads?
   a) file_uploads   b) file_upload
   c) file_input   d) file_intake

9) Which one of the following function is used to start a session?
   a) start_session()   b) session_start()
   c) session_begin()   d) begin_session()

10) Which one of the following databases has PHP supported almost since the beginning?
   a) Oracle Database   b) SQL
   c) SQL+   d) MySQL

B) One sentence answer/ one word answer.   **06**
1) What is HTTP?
2) What variable interpolation in PHP?
3) Explain the syntax for 'for— loop' with example.
4) What is Indexed Array in PHP?
5) What are the characteristics of PHP variables?
6) Explain $_REQUEST variable in PHP?

Q.2 Solve the following. (Any Eight)   **16**
a) Explain Static website.
b) What is multidimensional array? Explain with example.
c) Explain Constants in PHP.
d) State the purpose of array.
e) State how to find the size of file.
f) List any four web browser names.
g) Explain UPDATE mysql query.
h) Explain var_dump() function.
i) What is cookies?
j) What is sticky form?

Q.3 A) Attempt the following. (Any Two)   **10**
1) Explain parameter passing techniques in detail.
2) Explain soundex() and metaphone().
3) What is the use of session in PHP? Explain with example.

B) Short note/Solve.   **06**
What is file upload? Explain in detail with example.
OR
Explain constructor and destructor with example.

Q.4 A) Answer the following. (Any Two) 08
1) What is array? Explain multidimensional array with proper examples.
2) Explain $_GET and $_POST variable.
3) Write a program to check the given number is palindrome or not.

B) Describe/Explain/Solve 08
What is form validation? Explain client and server-side validation.
OR
Explain MySQL Architecture.

Q.5 Answer the following. (Any Two) 16
a) What is Session? Explain session state management in detail with example.
b) Write a php script for student database in MySQL with multiple queries (Insert, Update, Delete, and Select).
c) Explain different sorting techniques of arrays with proper examples.

Seat No.

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B.C.A. (Semester - III) (New) (CBCS) Examination: October/November – 2025
Financial Accounting with Tally (BCA1305)

Day & Date: Tuesday, 11-11-2025   Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
              2) Draw neat diagrams and give equations wherever necessary.
              3) Figures to the right indicate full marks.
              4) Use of log table and calculator is allowed

Q.1 Multiple choice questions.   **08**

1) A _____ is an intangible.
a) Goodwill   b) Stock
c) Building   d) Cash

2) Every Debit has corresponding _____.
a) Credit   b) Debit
c) Right hand side   d) None of these

3) International accounting day is observed on _____.
a) 10th November   b) 12th November
c) 10th December   d) 15th December

4) Closing stock is valued at cost of market price whichever is _____.
a) More   b) Equal
c) Less   d) none of these

5) _____ Key is used in tally to select the payment voucher.
a) F6   b) F7
c) F8   d) F5

6) _____ Key is used in tally to select Journal voucher.
a) F6   b) F7
c) F8   d) F9

7) A list of balances of all the accounts in ledger is called _____.
a) Journal   b) Ledger
c) Trial Balance   d) None of these

8) An act of exchange of things or services between two parties is termed as _____.
a) Ledger   b) Transfer
c) Transaction   d) Business

Q.2 Answer any four of the following. 08
   a) Explain Goods and service tax (GST).
   b) Subsidiary books.
   c) Explain any two methods to calculate depreciation of fixed asset.
   d) What is double entry?
   e) Explain the rule of Real account

Q.3 Answer any Two of the following. 08
   a) Explain accounting Voucher in tally.
   b) Explain the Journal and steps for journalizing.
   c) Define Book-Keeping and Explain its objectives.

Q.4 Answer any two of the following. 08
   a) Explain the features of tally.
   b) What is double entry system? Explain its Merits and demerits.
   c) Write the difference between book keeping and accountancy.

Q.5 Answer any one of the following 08
   a) Define Account and Explain Accounting Concepts.
   b) Journalize the following transactions in the books of Shrikant stores
   2025 August 1- Shrikant commenced business with cash Rs. 40,000/-
   2025 August 2- Purchased goods from Nita Rs. 20,000/- on credit
   2025 August 5- Paid rent Rs. 1000/-
   2025 August 10- Sold goods to Mr. Vikas Rs. 2,500/- on credit
   2025 August 15- Purchased furniture of Rs. 15000/-
   2025 August 18- Received bearer cheque of Rs. 1750/- from Vikas
   2025 August 21- Paid salary Rs. 5000/-
   2025 August 30- Paid to kiran by cheque of Dena Bank Rs. 5000/-

Seat No.

B.C.A. (Semester - III) (New) (CBCS) Examination: October/November – 2025
Operating System - II (BCA1306)

Day & Date: Wednesday, 12-11-2025   Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of logarithmic table and calculator is allowed

Q.1   Choose correct alternatives. (MCQ)   **08**

1) Memory management technique in which system stores and retrieves data from secondary storage for use in main memory is called?
a) fragmentation   b) paging
c) mapping   d) none of the mentioned

2) To avoid deadlock _____.
a) there must be a fixed number of resources to allocate
b) resource allocation must be done only once
c) all deadlocked processes must be aborted
d) inversion technique can be used

3) Page fault occurs when _____.
a) When a requested page is in memory
b) When a requested page is not in memory
c) When a page is corrupted
d) When an exception is thrown

4) Which one of the following is the deadlock avoidance algorithm?
a) banker's algorithm   b) round-robin algorithm
c) elevator algorithm   d) karn's algorithm

5) In memory management, a technique called as paging, physical memory is broken into Fixed-sized blocks called _____
a) pages   b) frames
c) blocks   d) segments

6) Instructions fetched by CPU according to the value of ____ from memory?
a) program status word   b) status register
c) program counter   d) instruction register

7) The address generated by CPU is: _____.
    a) absolute address   b) logical address
    c) physical address   d) mac address

8) Which set of necessary conditions causes a 'deadlock' in an operating system?
    a) Blocking send,race condition,hold and wait,Ram overflow
    b) Blocking send,race condition,cache incoherency,Ram overflow
    c) Mutual exclusion, no pre-emption, hold and wait, circular wait
    d) Mutual exclusion, race condition, cache incoherency, Ram overflow

Q.2 **Answer the following. (Any Four)**   **08**
    a) Differentiate between internal and external fragmentation.
    b) What is FCFS disk scheduling?
    c) Describe the Methods for Handling Deadlocks.
    d) What is logical address space and physical address space?
    e) Describe the basic approach of page replacement.
    f) What is virtual memory?

Q.3 **Write Short Notes. (Any Two)**   **08**
    a) Deadlock prevention.
    b) Page replacement policies.
    c) Swapping.

Q.4 **Answer the following. (Any Two)**   **08**
    a) What is a deadlock? How deadlocks are detected?
    b) Explain how demand paging affects the performance of a computer system.
    c) What are the disadvantages of single contiguous memory allocation?

Q.5 **Answer the following. (Any One)**   **08**
    a) Briefly explain about single-level, two-level and Tree-Structured directories.
    b) What is a page fault? Explain the steps involved in handling a page fault with a neat sketch.

Seat No.

B.C.A. (Semester - III) (CBCS) Examination: October/November – 2025
OOPs with C++ (19409301)

Day & Date: Tuesday, 04-11-2025   Max. Marks: 40
Time: 09:00 AM To 11:00 AM

Instructions: 1) All questions are compulsory.
                2) Draw neat diagrams wherever necessary.
                3) Figures to the right indicate full marks.

Q.1 Multiple choice questions: **08**

1) _____ is NOT a feature of Object-Oriented Programming (OOP)
   a) Inheritance   b) Data Abstraction
   c) Procedural Decomposition   d) Polymorphism

2) Who is known as the creator of C++?
   a) Dennis Ritchie   b) Brian Kernighan
   c) Bjame Stroustrup   d) James Gosling

3) Which of the following is NOT a keyword in C++?
   a) class   b) function
   c) return   d) private

4) Which of the following operator is not overloaded?
   a) ++   b) new
   c) ?   d) +

5) Which type of constructor accept reference of object as parameter?
   a) Default   b) Parameterized
   c) Static   d) Copy

6) Which of the following operator is overloaded with cin object?
   a) Extraction   b) Insertion
   c) Addition   d) Multiplication

7) _____ is not member of class.
   a) Constructor   b) Destructor
   c) Private member function   d) Friend function.

8) Which type of data do not belong to object of object?
   a) Static   b) Non-Static
   c) Both a & b   d) None of these.

Q.2 **Attempt the following. (Any Four)** **08**
  a) What is Encapsulation?
  b) What is Friend function?
  c) State the role of access specifier.
  d) Define 'Destructor'.
  e) List out characteristics of static member function.
  f) What are the applications of OOP's?

Q.3 **Attempt the following. (Any Two)** **08**
  a) Differentiate between OOP and POP.
  b) Write short note on: inline function.
  c) What is constructor? List out its characteristics.

Q.4 **Attempt the following. (Any Two)** **08**
  a) What is function overloading? Explain with example.
  b) Write a program that demonstrates defining member function outside the class.
  c) Write a program to overload '+' as binary operator.

Q.5 **Attempt the following. (Any One)** **08**
  a) What is OOP? Explain its different features.
  b) What is Friend class? Explain it with suitable example/program.

| Seat No. | | Set | P |

B.C.A. (Semester - III) (CBCS) Examination: October/November – 2025
Computer Networks - I (19409306)

Day & Date: Tuesday, 04-11-2025   Max. Marks: 40
Time: 03:00 PM To 05:00 PM

Instructions: 1) All questions are compulsory.
                2) Draw neat diagrams and give equations wherever necessary.
                3) Figures to the right indicate full marks.
                4) Use of log table and calculator is allowed

Q.1   Choose the correct alternative. (MCQ)   **08**

1) Two devices are in network if _____.
     a)   a process in one device is able to exchange information with a process in another device
     b)   a process is running on both devices
     c)   PIDs of the processes running of different devices are same
     d)   a process is active and another is inactive

2) Which of the following layer of OSI model also called end-to-end layer?
     a)   Presentation layer   b)   Network layer
     c)   Trans port-layer   d)   Session layer

3) The physical layer is responsible for _____.
     a)   line coding   b)   channel coding
     c)   modulation   d)   all of the mentioned

4) Which layer provides the services to user?
     a)   application layer   b)   session layer
     c)   presentation layer   d)   hysical layer

5) The data link layer takes the packets from and encapsulates them into frames for transmission_____
     a)   physical layer   b)   network layer
     c)   transport layer   d)   application layer

6) Which of the following layers is an addition to OSI model when compared with TCP IP model? Address bus in 8085 microprocessor is _____.
     a)   Application layer
     b)   Presentation layer
     c)   Session layer
     d)   Session and Presentation layer

7) Which of the following is the multiple access protocol for channel access control?
   a) CSMA/CD
   b) CSMA/CA
   c) Both CSMA/CD & CSMA/CA
   d) HDLC

8) What is the benefit of the Networking?
   a) File Sharing   b) Easier access to Resources
   c) Easier Backups   d) All of the Above

Q.2 Answer the following: (Any Four)   **08**
   a) Give advantages of computer network.
   b) What are the various network control devices?
   c) What are the responsibilities of Data Link Layer?
   d) Describe hub and switch.
   e) What is Transmission Impairment?
   f) What do you mean by cyclic redundancy check?

Q.3 Write short notes on the following. (Any Two)   **08**
   a) Error Detection and its methods.
   b) Network topology.
   c) Applications of Internet.

Q.4 Answer the following: (Any Two)   **08**
   a) Distinguish between guided and unguided transmission media.
   b) Explain in detail about analog transmission and digital transmission
   c) Distinguish between LAN and WAN.

Q.5 Answer the following: (Any One)   **08**
   a) Explain Multiple Access Protocol in detail.
   b) Describe the OSI model with neat diagram.

Seat No.

B.C.A. (Semester - IV) (New) (CBCS) Examination: October/November – 2025
Object Oriented Programming using Java - II (BCA1401)

Day & Date: Tuesday, 04-11-2025　　　　　　　　　Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
　　　　　　　　2) Draw neat diagrams and give equations wherever necessary.
　　　　　　　　3) Figures to the right indicate full marks.

Q.1　Multiple choice question:　　　　　　　　　　　　　　　　　08

1) Which method is used to convert a primitive to its corresponding wrapper object?
　　a) parseXxx()　　　　　　　　b) wrapperOf()
　　c) valueOf()　　　　　　　　　d) toString()

2) What is the default priority of a thread in Java?
　　a) 0　　　　　　　　　　　　　b) 5
　　c) 1　　　　　　　　　　　　　d) 10

3) Which class is used for UDP-based communication in Java?
　　a) Socket　　　　　　　　　　b) Datagram Socket
　　c) Server Socket　　　　　　　d) URL

4) Which collection class allows you to access elements by a unique key?
　　a) List　　　　　　　　　　　　b) Set
　　c) Map　　　　　　　　　　　　d) Queue

5) What is the default layout manager for a JPanel?
　　a) BorderLayout　　　　　　　b) GridLayout
　　c) FlowLayout　　　　　　　　d) BoxLayout

6) What is the correct hierarchy for a JButton?
　　a) Object → Component → Container → JButton
　　b) Object→Component → Container → JComponent → JButton
　　c) Object → JComponent → JButton
　　d) Object → Component → JComponent → JButton

7) Which interface should be implemented to handle mouse events?
　　a) MouseListener　　　　　　　b) MouseEvent
　　c) MouseActionListener　　　　d) MouseAdapter

8) Which method is used to establish a connection with the database in JDBC?
　　a) connect()　　　　　　　　　b) getConnection()
　　c) createConnection()　　　　　d) openConnection()

Q.2   Answer the following. (Any Four)   **08**
   a)   What is type casting?
   b)   What are the use of Wrapper classes?
   c)   What is thread priorities?
   d)   Write the DB Connectivity Steps.
   e)   Write Difference between boxing and unboxing.
   f)   What are the use of socket programing in java?

Q.3   Attempt the following. (Any Two)   **08**
   a)   Explain the Difference between Array List & vector class.
   b)   Write a Java program that demonstrates how to create and manage
          multiple threads.
   c)   Explain socket class with example.

Q.4   Answer the following. (Any Two)   **08**
   a)   What is LayoutManager? explain types of LayoutManager?
   b)   Explain thread life cycle with example.
   c)   Write a program to perform CRUD (Create, Read, Update, Delete)
          operations on a MySQL database.

Q.5   Answer the following. (Any One)   **08**
   a)   What is JDBC Driver? Explain different types of JDBC Drivers?
   b)   Write a GUI program to design Student Registration (Reg. no., Name,
          password, confirm password, address, email, contact no.) page using
          swing components.

Seat No.

B.C.A. (Semester - IV) (New) (CBCS) Examination: October/November – 2025
Data Structure Using 'C' – II (BCA1402)

Day & Date: Thursday, 06-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
               2) Figures to the right indicate full marks.
               3) Draw neat diagrams and give equations wherever necessary.

Q.1 Multiple choice questions.   **08**

1) _____ number of children that a binary tree node can have.
   a) 1   b) 2
   c) 3   d) 4

2) BFS stands for _____.
   a) Breadth First Traversal   b) Best First Traversal
   c) Better First Traversal   d) None of above

3) The leaves of an expression tree always contain ____.
   a) Operators   b) Operands
   c) Null   d) expression

4) How many types of insertion are performed in a binary tree?
   a) 0   b) 1
   c) 2   d) 3

5) Which of the following properties does a simple graph not hold.
   a) Must be connected
   b) Must be unweighted
   c) Must have no loops or multiple edges
   d) Must have no multiple edges

6) A graph with all vertices having equal degree is known as a _____
   a) Multi graph   b) Regular graph
   c) Simple graph   d) Complete graph

7) What is the advantage of bubble sort over other sorting techniques?
   a) It is faster   b) Consumes less memory
   c) Input is already sorted   d) All of above

8) _____ method is used for sorting in merge sort.
   a) Partitioning   b) Merging
   c) Exchanging   d) Selection

Q.2 Explain the following concept: (Any Four)   **08**
   a) Define Complete Binary Tree.
   b) Define Graph.
   c) List out the different types of hashing functions.
   d) Define Leaf node.
   e) Define Sorting.
   f) Define Searching.

Q.3 Answer the following: (Any Two)   **08**
   a) Explain Indexed sequential search method.
   b) Explain different Types of Graphs.
   c) Explain BFS and DFS.

Q.4 Answer the following: (Any Two)   **08**
   a) Explain bubble sort method with example.
   b) Explain different tree traversal methods.
   c) Different types of Searching method.

Q.5 Answer the following: (Any One)   **08**
   a) Write a program for implementation of linear search.
   b) Explain different types of sorting in detail.

Seat No.

B.C.A. (Semester - IV) (New) (CBCS) Examination:
October/November – 2025
Database Management System – II (BCA1403)

Day & Date: Friday, 07-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
         2) Draw neat diagrams and give equations wherever necessary.
         3) Figures to the right indicate full marks.
         4) Use of log table and calculator is allowed

Q.1 Multiple Choice Questions: 08

1) Which of the following is an operation of Transactions?
     a) Read   b) Write
     c) Commit   d) All of these

2) Which of the following is an operation in Atomicity.
     a) Abort   b) Commit
     c) Both a & b   d) None of above

3) LBP stands for _____.
     a) Link Based Protocols   b) Lock Based Protocols
     c) Large Based Protocols   d) Lease Based Protocols

4) _____is phase that a query passes through during the DBMS
     a) Optimization   b) Relocation
     c) Engine   d) Control

5) What is the Full form of PL in PL/SQL.
     a) Programming Language   b) Procedural Language
     c) Programming Logic   d) Perfect Language

6) Which of the following command is used to direct the PL/SQL Output to a Screen?
     a) dbms_output.line   b) dbms_output.put
     c) dbms__output.put_line   d) dbms_file.line

7) _____is a temporary memory area where Oracle execution SQL statement.
     a) Cursor   b) Trigger
     c) Exception   d) Format

8) _____ is a database object it will permanently save database.
     a) Package   b) Trigger
     c) Cursor   d) Procedure

Q.2 Answer the following. (Any Four) 08
   a) Define Transaction?
   b) What is parameter?
   c) Define Query Processing?
   d) What is Deadlock?
   e) What is Package?
   f) What is check?

Q.3 Attempt the following: (Any Two) 08
   a) What are the Three Concurrency Problems?
   b) Write down types of Lock?
   c) Difference Between SQL and Pl/SQL

Q.4 Answer the following. (Any Two) 08
   a) Write a PL/SQL code/program to accept two different number To Find Addition, Multiplication of given number.
   b) Write down type of Cursor?
   c) Write down Control Structure in PL/SQL.

Q.5 Answer the following. (Any One) 08
   a) What are the properties of a Transaction? What are different transaction states?
   b) Explain the Feature of Pl/SQL?

Seat No.

Set P

B.C.A. (Semester - IV) (New) (CBCS) Examination: October/November – 2025
Software Testing & QA (BCA1404)

Day & Date: Saturday, 08-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
         2) Figures to the right place indicate full marks.

Q.1 Choose correct alternatives.   **08**

1) What's the purpose of a Summary Report?
   a) Logs failed test cases
   b) Captures bugs
   c) Gives high-level test execution results
   d) Maps requirements

2) What is the main purpose of a Test Case Template?
   a) To log bugs
   b) To track requirement changes
   c) To structure test cases uniformly
   d) To document test results

3) In the bug life cycle, which state indicates the bug has been fixed but not yet verified?
   a) Open   b) Fixed
   c) Verified   d) Closed

4) Which testing is done to determine how well the software recovers from crashes?
   a) Stress Testing   b) Recovery Testing
   c) Soak Testing   d) Load Testing

5) What's the difference between an error and a failure?
   a) Error is in code; failure is in result
   b) Error is visible, failure is hidden
   c) Failure causes bugs
   d) They are the same

6) Which report details We mapping' of requirements to Test cases?
   a) Traceability Matrix   b) Execution Report
   c) Summary Report   d) Bug Report

7) Which type of testing is done before full-scale testing to ensure core functions work?
   a) Regression Testing
   b) Stress Testing
   c) Smoke Testing
   d) Volume Testing

8) What kind of testing uses previous experience to guess the problem areas?
   a) Equivalence Testing
   b) Error Guessing
   c) Regression Testing
   d) Load Testing

Q.2 Answer the following. (Any Four)   **08**
   a) Enlist any four benefits of Test Plan.
   b) What is path testing?
   c) Enlist two advantages of acceptance testing.
   d) List out types of loop testing.
   e) Design any four boundary value test cases for textbox which accept numbers from 1-999.
   f) State any four basic principles of writing good test cases.

Q.3 Answer the following. (Any Two)   **08**
   a) What is the need of Regression Testing? Explain the different types of regression testing and their purposes.
   b) Explain different types of defects.
   c) Describe parameters of performance testing.

Q.4 Answer the following. (Any Two)   **08**
   a) Explain Load testing with example.
   b) List types of white box testing. Describe any two types of white box testing.
   c) Discuss the process of preparing a test execution report.

Q.5 Answer the following. (Any One)   **08**
   a) How to prepare defect report? Describe attributes of defect report with suitable example.
   b) How do you write a test case? Explain the essential fields of test case with example?

Seat No.

B.C.A. (Semester - IV) (New) (CBCS) Examination: October/November – 2025
Digital Marketing (BCA1405)

Day & Date: Monday, 10-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
           2) Draw neat diagrams wherever necessary.
           3) Figures to the right indicate full marks.
           4) Use of log table and calculator is allowed

Q.1 Multiple Choice Question.   **08**

1) Which form of digital marketing allow businesses to pay for advertising in front of people searching for specific keyword online.
   a) Search Engine Optimization   b) Google My Business
   c) Search engine Marketing   d) Social Media Marketing

2) In Mobile marketing, full form of LBS is _____.
   a) Location Based Service   b) List Based service
   c) Lead Based service   d) None of the above

3) Which of the following factors lead to a successful PPC advertisement?
   a) Selecting Relevant Keyword   b) Improve landing page quality
   c) Quality Score   d) All of the Above

4) _____ is/are part(s) of SEO.
   a) Off-Page   b) On-Page
   c) Both A and B   d) None of the above

5) The important On-Page SEO factor(s) is/are:
   a) Meta Tags   b) Sitemap
   c) Canonical Tag   d) All of the above

6) _____ contain meta tags that contain information about their content.
   a) Pages   b) Sites
   c) Portals   d) Browsers

7) Google may use _____links to determine trustworthiness.
   a) Content   b) Sitemap
   c) Outbound   d) Internal

8) Link _____ is an off-page SEO technique that focuses on increasing links to a site
   a) Disability   b) Ability
   c) Locality   d) Popularity

Q.2 **Answer the following. (Any Four)** **08**
  a) What is SEO?
  b) Why SWOT is required for business?
  c) Explain Pay per click.
  d) What is on page Optimization?
  e) What is conversion process in digital marketing?
  f) Explain Google Ad Words.

Q.3 **Attempt the following. (Any Two)** **08**
  a) Differentiate between Traditional Marketing and Digital Marketing.
  b) Explain any four different social Media Marketing platforms.
  c) Explain any one Website Traffic Analysis tool.

Q.4 **Answer the following. (Any Two)** **08**
  a) Explain search engine marketing and uses of search engine marketing.
  b) Explain Affiliate Marketing with example.
  c) Explain Google Analytics

Q.5 **Answer the following. (Any One)** **08**
  a) Explain Off page optimization Techniques.
  b) Explain social media analytical Tools.

Seat No.

Set **P**

B.C.A. (Semester - IV) (New) (CBCS) Examination: October/November – 2025
Python – II (BCA1406)

Day & Date: Tuesday, 11-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of logarithmic table and calculator is allowed

Q.1   Multiple Choice Question.   08

1) What is the purpose of the super() function in Python?
   a) To create a superclass
   b) To access private members of a class
   c) To call the constructor or method of the superclass
   d) To stop the execution of a method

2) Which of the following is the correct way to handle exceptions in Python?
   a) try-except   b) try-catch
   c) do-except   d) error-handler

3) Which of the following modules would you use to perform scientific computations like integration or solving differential equations?
   a) random   b) math
   c) numpy   d) scipy

4) Which of the following best defines an abstract class in Python?
   a) A class that cannot have any methods
   b) A class that must have a constructor
   c) A class that contains one or more abstract methods and cannot be instantiated
   d) A class used only for operator overloading

5) What is the purpose of thread synchronization in Python?
   a) To ensure that only one thread accesses a shared resource at a time
   b) To stop all threads at once
   c) To randomly execute multiple threads
   d) To increase the execution speed of threads

6) In Tkinter, what is the purpose of the Frame widget?
   a) To display text only
   b) To act as a container for organizing other widgets
   c) To handle mouse events
   d) To connect to a database

7) Which of the following statements about local and global variables is correct?
   a) A local variable can be accessed anywhere in the program
   b) A global variable is declared inside a function
   c) Local variables override global variables with the same name inside functions
   d) Global variables cannot be changed inside a function

8) What is the primary difference between a function and a method in Python?
   a) Methods are defined using def, but functions are not
   b) Functions are part of a class, while methods are not
   c) Functions cannot have parameters, but methods can
   d) Methods are functions that belong to an object or class

Q.2 Answer the following. (Any Four) 08
   a) What is an anonymous function in Python? Write examples using lambda.
   b) What is the role of a constructor in Python? Write its syntax.
   c) How can you create a thread in python? Give one example.
   d) Name two built-in exceptions in Python and when they occur.
   e) What is an inner class? Give a simple example.
   f) List any two functions from the random module and describe their use.

Q.3 Attempt the following. (Any Two) 08
   a) Explain how user-defined exceptions are created in Python with a sample code.
   b) List any four Tkinter widgets and explain their usage with examples.
   c) Describe class method and static method. Provide code examples for each.

Q.4 Attempt the following. (Any Two) 08
   a) Explain the different file modes available in Python with examples.
   b) Write a Python program to insert and retrieve records from a MySQL table.
   c) Explain the four main features of Object-Oriented Programming.

Q.5 Answer the following. (Any one) 08
   a) What is synchronization in the context of threads? Why is it important? Demonstrate synchronization using the Lock class in Python to prevent race conditions in a multithreaded program.
   b) Explain the concept of abstract classes and interfaces in Python using the abc module. Create an abstract base class Shape with an abstract method area() and implement it in derived classes Circle and Rectangle.

Seat
No.

B.C.A. (Semester - IV) (CBCS) Examination: October/November - 2025
OOPS with C++ - II (19409401)

Day & Date: Tuesday, 04-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

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

Q.1   Choose correct alternative. (MCQ)   08

1) Which of the following constructors are provided by the C++ compiler if not defined in a class?
   a) Copy constructor   b) Default constructor
   c) Copy Assignment Operator d) All of the mentioned

2) Which type of function among the following shows polymorphism?
   a) Inline function   b) Virtual function
   c) Undefined functions   d) Class member functions

3) If same message is passed to objects of several different classes and all of those can respond in a different way, what is this feature called?
   a) Inheritance   b) Overloading
   c) Polymorphism   d) Overriding

4) What is abstract class in C++?
   a) Any Class in C++ is an abstract class
   b) Class from which any class is derived
   c) Class specifically used as a base class with atleast one virtual functions
   d) Class specifically used as a base class with atleast one pure virtual functions

5) A base class contain pure virtual function is called as _____.
   a) Private base class   b) abstract base class
   c) Virtual function   d) None of these

6) Which header file is required to use file I/O operations?
   a) <ifstream>   b) <ostream>
   c) <fstream>   d) <iostream>

7) Which of the following is not a type of Constructor in C++?
   a) Default constructor   b) Parameterized constructor
   c) Copy constructor   d) Friend constructor

8) What is meant by a polymorphism in C++?
    a) class having only single form
    b) class having four forms
    c) class having many forms
    d) class having two forms

Q.2 Answer the following. (Any four)   **08**
    a) Define Compile time Polymorphism?
    b) Write the syntax of Virtual Base Class.
    c) State any two stream state member function.
    d) Write file opening modes.
    e) Define Destructor?

Q.3 Answer the following. (Any two)   **08**
    a) Write a program in C++ to implement hybrid inheritance.
    b) Explain runtime polymorphism with example.
    c) Write a program in C++ to read a file and to count the number of characters, number of blank spaces & numbers of words in that file.

Q.4 Answer the following. (Any two)   **08**
    a) Explain stream classes with example.
    b) Explain exception handling mechanism with example.
    c) Write the rules of declaring constructor.

Q.5 Answer the following (Any One).   **08**
    a) Explain pointer to derived class and pointer to base class.
    b) Define pure virtual function, abstract base class? Explain with example.

B.C.A. (Semester - IV) (CBCS) Examination: October/November - 2025
MySQL (19409403)

Day & Date: Thursday, 06-11-2025   Max. Marks: 40
Time: 11:00 AM To 01:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.

Q.1   Multiple choice questions.   08

1) Which clause is used to sort results in ascending or descending order?
   a) sort by   b) order by
   c) group by   d) Having

2) Which function returns the length of a string?
   a) len()   b) length()
   c) size()   d) strlen()

3) Which MySQL command is used to delete a database?
   a) remove database   b) drop database
   c) delete database   d) truncate database

4) Which of the following functions is a control flow function?
   a) if()   b) sum()
   c) abs()   d) length()

5) Which join displays all rows from the left table and only matched rows from the right table?
   a) right join   b) inner join
   c) left join   d) full join

6) Which operator is used for pattern matching in MySQL?
   a) between   b) in
   c) like   d) exists

7) Which statement is used to add a new column in a table?
   a) update table   b) alter table
   c) append table   d) modify table

8) Which command is used to import CSV data into MySQL?
   a) import   b) load data infile
   c) open file   d) csv import

Q.2 Answer any four of the following.   **08**
    a) Difference between CHAR and VARCHAR.
    b) What are string functions in MySQL? Give examples.
    c) What is the use of GROUP BY clause?
    d) What is the difference between UNION and UNION ALL?
    e) Explain how to rename a column using ALTER TABLE.
    f) What is a CHECK constraint? Give an example.

Q.3 Answer any two of the following.   **08**
    a) Explain the significance of WHERE and HAVING clauses with examples
    b) What is a cursor in MySQL? Explain its types and working.
    c) Compare Primary Key, Foreign Key, and Composite Key constraints with suitable examples.

Q.4 Answer any two of the following.   **08**
    a) Explain ROLLUP in GROUP BY with an example.
    b) Explain the use of subqueries in MySQL with an example.
    c) Explain control flow functions in MySQL with examples.

Q.5 Answer any one of the following.   **08**
    a) Why are Views used in MySQL? Explain creation and updation of views with examples.
    b) Consider the table Orders and write down following Queries.

Order ID	Customer Name	Product	Quantity	Price	Oder Date
101	Amit	Laptop	2	40000	2021-01-15
102	Neha	Phone	3	15000	2021-02-10
103	Rakesh	Tablet	1	25000	2021-03-05
104	Meena	Laptop	1	42000	2021-04-12
105	Rahul	Phone	4	16000	2021-05-20

    i) Display all orders where product is Laptop.
    ii) Find the total quantity of each product.
    iii) Calculate total order value (Quantity x Price).
    iv) Display orders placed after 2021-03-01.
    v) Create a view to display Customer Name and Order Date only.
    vi) Display customer details whose name start with 'R' letter.

Seat No.

B.C.A. (Semester - IV) (CBCS) Examination: October/November – 2025
Ethics and Cyber law (19409404)

Day & Date: Friday, 07-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat diagram and give equations wherever necessary.
3) Figures to the right indicate full marks.

Q.1   Multiple Choice Questions.   08

1) Hacking bank account related information is an example of _____.
a) Software piracy   b)   unauthorized access
c) cyber law   d)   fair use

2) Punishment for child pornography is provided under Section _____ of the I.T. Act
a) 66   b)   67-A
c) 66-B   d)   67-C

3) Sending of unsolicited bulk and commercial messages over the internet is _____.
a) Stalking   b)   Phishing
c) Spamming   d)   Spoofing

4) Information Technology Act was passed in the year _____.
a) 1999   b)   2000
c) 2008   d)   2012

5) Computer virus is a _____.
a) Programme   b)   File
c) Disk   d)   Audio

6) IT Act 2000, amended in: ____.
a) 2005   b)   2008
c) 2011   d)   2015

7) Harassing someone through electronic message is offence of:
a) Hacking   b)   Squatting
c) Stalking   d)   Phishing

8) _____ means a system of a secure key pair consisting of a private
key for creating digital signature and public key for verifying digital
signature.
   a) Cryptography   b) Asymmetric cryptosystem
   c) Symmetric cryptosystem d) None of the above

Q.2 Answer any four of the following.   08
   a) What is Software Piracy?
   b) Explain the Intellectual Property Aspects.
   c) Explain the E-Mail Spoofing.
   d) What is cybercrime and punishment.
   e) What are Weaknesses in the IT Act.
   f) Explain the scope and limitations of Ethical Hacking.

Q.3 Write short notes on Any Two of the following.   08
   a) Password Sniffing.
   b) Security Aspects.
   c) Penetration Testing.

Q.4 Answer any Two of the following.   08
   a) Explain the FUS Triangle.
   b) What is phishing?
   c) What is Newsgroup Spam?

Q.5 Answer any One of the following.   08
   a) What is security attacks? Explain the types of security attacks.
   b) What is Foot Printing? What is Objective of Foot Printing?

B.C.A. (Semester - IV) (CBCS) Examination:
October/November - 2025
Angular JS (19409405)

Day & Date: Saturday, 08-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figure to right indicate full marks

Q.1   Multiple choice questions.   08
1)   AngularJS is perfect for _____.
    a)   Create Single Page Applications
    b)   Creating a Desktop Application
    c)   Create Web Services
    d)   None of these

2)   AngularJS applications are a mix of _____.
    a)   HTML & PHP   b)   HTML & JavaScript
    c)   HTML & CrossScript   d)   All of These

3)   An AngularJS module defines an _____.
    a)   Expression   b)   Application
    c)   Element   d)   None of the above

4)   Who developed AngularJS?
    a)   Jesse James Garrett   b)   Douglas Crockford
    c)   MiskoHevery   d)   BrendanEich

5)   Which directive can be used to write AngularJS expressions?
    a)   ng-expression   b)   ng-bind
    c)   ng-statement   d)   ng-bindexpression

6)   _____ function is used to create a module in AngularJS.
    a)   Module   b)   ng-bind
    c)   angular.create   d)   angular.module

7)   _____ directive defines the application controller?
    a)   ng-control   b)   ng-controller
    c)   ng-NewController   d)   None of the above

8)   _____ is used as a link between view and controller.
    a)   Module   b)   Scope
    c)   CSS   d)   None of these

Q.2   Answer any four of the following.   **08**
    a)   What is AngularJS?
    b)   What is scope in AngularJS?
    c)   What are the Modules?
    d)   What is AngularJS Forms?
    e)   Explain directives in AngularJS.
    f)   What is SPA?

Q.3   Write short notes on any two of the following.   **08**
    a)   Model-View-Controller in AngularJS?
    b)   CSS transforms in AngularJS?
    c)   Bootstrapping in AngularJS?

Q.4   Answer any two of the following.   **08**
    a)   What is Controller? Explain Role of a Controller
    b)   Explain Angular expressions v/s JavaScript expressions?
    c)   Explain $apply and Swatch with example?

Q.5   Answer any one of the following.   **08**
    a)   Explain architecture of AngularJS with different Features?
    b)   What are the filters? Explain different type of filter?

Seat No.

B.C.A. (Semester - IV) (CBCS) Examination: October/November – 2025
Advance 4.0 d Computer Networks (19409406)

Day & Date: Monday, 10-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
                 2) Draw neat diagrams and give equations wherever necessary.
                 3) Figures to the right indicate full marks.

Q.1 Choose the correct alternatives.   **08**

1) MIME stands for ____.
    a) Multipurpose Internet Mail Extensions
    b) Minimum Internet Mail Entry
    c) Multipurpose Internet Mail Email
    d) Multi Internet Mail End

2) In distance vector routing, a router sends its updating packet _____.
    a) to every other router   b) only to its neighbors
    c) only to modem   d) None of these

3) In _____congestioncontrol, policies are applied to prevent congestion before it happens.
    a) closed loop   b) open loop
    c) both a and b   d) None of these

4) What layer in the TCP/IP stack is equivalent to the Transport layer of the OSI model?
    a) Network Access   b) Application
    c) Internet   d) Host-to-Host

5) POP stands for _____.
    a) Post Online Post
    b) Post Office Protocol
    c) Post official Point
    d) Post Operation Protocol

6) _____ is connectionless protocol.
    a) UDP   b) TCP
    c) FTP   d) None of these

7) Which of the following is an example of Bluetooth?
- a) Wide area network
- b) Metropolitan area network
- c) Personal area network
- d) Local area network

8) _____ is the type of firewall is connected between the device and the network connecting to internet.
- a) Packet filtering firewall
- b) Software Firewall
- c) Stateful Inspection Firewall
- d) Hardware Firewall

Q.2 Answer any four of the following. 08
- **a)** What is UDP?
- **b)** What is Virtual LAN?
- **c)** What is proxy server?
- **d)** What is DNS?
- **e)** Write on: Smart Card

Q.3 Write any two of the following. 08
- **a)** Explain the TCP/IP suite.
- **b)** Explain Web server and Samba server in details.
- **c)** What are Broadcast Routing and Multicast Routing?

Q.4 Answer any two of the following. 08
- **a)** Explain the congestion prevention polices.
- **b)** Write on: ARP, RARP, SMTP and SNMP
- **c)** Explain the Firewall security.

Q.5 Answer any one of the following 08
- **a)** Explain the Role and responsibility of network administrator in details.
- **b)** What is a Routing Algorithm? Explain shortest path routing, Distance Vector routing and Link state routing in details.

Seat No.	

B.C.A. (Semester - IV) (CBCS) Examination:
October/November - 2025
Python Programming (19409407)

Day & Date: Tuesday, 11-11-2025   Max. Marks: 80
Time: 12:00 PM To 03:00 PM

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

Q.1 A) Multiple choice questions.   **10**

1) What is the name of Python's built-in module for regular expressions?
   a) regex   b) regexes
   c) REG   d) re

2) What will be the output after the following statements?
   ```
   def call(var):
   print(var, end =')
   call(45)
   ```
   a) 55   b) 4 5
   c) 45   d) var

3) What type of error will be shown after the following statement?
   a = b
   a) SyntaxError   b) TypeError
   c) ValueError   d) NameError

4) What will be the output after the following statements?
   x = [5, 4, 3, 2, 1]
   print(x.index(1))
   a) 4   b) 3
   c) 2   d) 1

5) What is the name of Python's built-in module for high level file operations?
   a) shutil   b) fileutil
   c) futility   d) fileop

6) What does the following statement do?
   x = open('python.csv', 'r')
   a) Opens an existing text file named python.csv to write
   b) Opens an existing text file named python.csv to append
   c) Opens an existing text file named python.csv to read
   d) Opens a new file named python.csv to read

7) What will be the output for a function that does not return any value?
   a) None   b) No value
   c) Zero   d) Bool

8) What is the data type of x after the following statement?
   x = [7, 8, 9, 10]
   a) List   b) Dictionary
   c) Tuple   d) String

9) What does the following statements do?
   from datetime import *
   print(datetime.today().strftime('%X'))
   a) Displays the current year as 0001 to 9999
   b) Displays the timezone name
   c) Displays the time appropriate for locale
   d) Displays the current year as 00 to 99

10) What is the name of the GUI that comes in-built as an interactive shell with Python?
   a) PGUI   b) Pyshell
   c) IDLE   d) PythonSh

B) Fill in the blanks.   **06**
1) Python Dictionary is used to store the data in a _____ format.
2) _____ is used for multi-line strings in Python.
3) _____ is the correct extension of the Python file.
4) To handle Multidimensional Arrays, Python use _____ package.
5) The Elements of List are inside _____.
6) _____ developed Python Programming Language.

Q.2 Solve any Eight of the following.   **16**
a) What is GUI?
b) What is Regular Expression? Give any example.
c) Define anonymous function.
d) Define Global variable and local variable.
e) What is use of super () method?
f) What is module?
g) What is collection?
h) What is File? List Different modes of file.
i) What is the use of PVM?
j) What is Exception?

Q.3 A) Attempt any Two of the following.   **10**
a) What is constructor? Explain types of constructor with example.
b) Write a program to insert employee information such eid, ename, salary, etc into employee Table.
c) What is exceptions? Explain built-in exceptions and user defined exceptions with example.

B) Explain abstract classes and interfaces with example.   **06**

Q.4   A)   Attempt any Two of the following questions.   **08**
  a) Explain Thread in python.
  b) Write a program to check given number is Armstrong or not.
  c) What is String? Explain any six methods of string with example.

B) Explain method overloading and method overriding in details.   **08**

Q.5   Attempt any two of the following questions.   **16**
  a) Explain regular expression with example.
  b) What is inheritance? Explain types of inheritance with example.
  c) Write a program to drawn the following shapes on canvas:
    i) circle
    ii) square
    iii) rectangle
    iv) line

| Seat No. | | Set | P |

B.C.A. (Semester - V) (New) (CBCS) Examination: October/November - 2025
English
Business English (BCA1501)

Day & Date: Tuesday, 28-10-2025 Max. Marks: 40
Time: 09:00 AM To 12:00 PM

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

Q.1 Select the correct alternatives from the options. **08**

1) The Queen Gulnar desires_____
   a) The king's attention b) more jewellery
   c) a rival d) more clothes

2) Which plant skirted the fence?
   a) furs b) furze
   c) fagus d) fern

3) What is the second vision outlined by Dr. Kalam in this speech?
   a) Freedom b) Independence
   c) Development d) Financial growth

4) What, according to the poet is the first stage of human life?
   a) old age b) infancy
   c) being a student d) death

5) According to the poet, money is our vast _____ madness.
   a) insanity b) collective
   c) collection d) None of the above

6) What did Phatik leave for his brother?
   a) bicycle
   b) wooden log
   c) books
   d) fishing-rod, kite and marbles

7) _____ the computer when you finish your work?
   a) shut down b) boot up
   c) sing up d) log in

8) Rupa loves Priya. (Change into Passive Voice)
   a) Priya is loved by Rupa.
   b) Priya was loved by Rupa.
   c) Priya has loved by Rupa.
   d) None of the above

Q.2 Answer the following question in brief. (Any Four) **12**
   a) Why did Phatik's mother readily agree to the uncle's offer?
   b) Why is queen unsatisfied and seek a rival?
   c) How did the villagers regard the schoolmaster?
   d) What are changes money has made in each individual?
   e) What are the three vision Dr. kalam had for India?
   f) Why do men and women have exits and entrance in the play of life in the poem ''All the World is a stage''?

Q.3 Write the following. (Any One) **10**
   a) What is the important of 21st century skills?
                              OR
   b) Describe in detail the 4C's in your own words.

Q.4 Describe literacy and life skills and its importance. **10**

Seat No.

B.C.A. (Semester - V) (New) (CBCS) Examination: October/November - 2025
Data Communication and Networking (BCA1502)

Day & Date: Wednesday, 29-10-2025   Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
                2) Draw neat labelled diagrams wherever necessary.
                3) Figures to right indicate full marks.

Q.1 A) Multiple choice questions.   **10**

1) Which of the following transmission media is the fastest and most secure for long-distance communication?
   a) Twisted pair cable   b) Coaxial cable
   c) Fiber optic cable   d) Satellite communication

2) Which multiplexing technique assigns a different frequency to each signal?
   a) TDM
   b) FDM
   c) Wavelength Division Multiplexing (WDM)
   d) Code Division Multiplexing (CDM)

3) Which technique is used for flow control?
   a) CRC   b) Go-Back-N ARQ
   c) Sliding Window   d) Bit stuffing

4) Which ARQ protocol retransmits only the damaged frame?
   a) Stop-and-Wait   b) Go-Back-N
   c) Selective Repeat   d) None of the above

5) How many bits are there in an IPv4 address?
   a) 16   b) 32
   c) 64   d) 128

6) Which protocol maps IP addresses to MAC addresses?
   a) ICMP   b) RARP
   c) DHCP   d) ARP

7) Which of the following protocols is part of the TCP/IP protocol suite?
   a) FTP   b) HTTP
   c) SMTP   d) All of the above

8) What is the meaning of Bandwidth in Network?
   a) Transmission capacity of a communication channel
   b) Connected Computers in the Network
   c) Class of IP used in Network
   d) None of Above

9) Computer Network is _____.
   a) Collection of hardware components and computers
   b) Interconnected by communication channels
   c) Sharing of resources and information
   d) All of the Above

10) How many layers does OSI Reference Model has?
   a) 4   b) 5
   c) 6   d) 7

B) Fill in the blanks: **06**
   1) A _____is the physical path over which a message travels.
   2) _____ is the multiplexing technique that shifts each signal to a different carrier frequency.
   3) _____Topology there is a central controller or hub.
   4) Physical or logical arrangement of network is_____.
   5) Each IP packet must contain_____.
   6) _____ provides a connection-oriented reliable service for sending messages.

Q.2 Solve the following. (Any Eight)   **16**
   a) Bridge
   b) Serial transmission
   c) WWW
   d) What is SMTP?
   e) What is the use of Gateways?
   f) Define Analog and Digital signal.
   g) Transmission media.
   h) What is Stop-and-Wait Protocol?
   i) What is hub?
   j) List the layers of OSI.

Q.3 A) Attempt the following. (Any Two)   **10**
   1) TDM
   2) What are the different Network Topologies?
   3) Explain DNS in short.

   B) Explain Go Back N ARQ.   **06**

Q.4 A) Attempt the following. (Any Two)   08
1) What is Pulse Code Modulation (PCM)?
2) Explain Shortest Path Routing Algorithm.
3) Explain Telnet.

B) What are the different Transmission Media?   08

Q.5 Answer the following. (Any Two)   16
a) Explain TCP with Header format.
b) Explain ISO- OSI Reference Model in detail with suitable diagram.
c) Explain Distance Vector Routing Algorithm.

Seat No.		Set	P

B.C.A. (Semester - V) (New) (CBCS) Examination: October/November - 2025
Data Warehousing and Data Mining (BCA1503)

Day & Date: Thursday, 30-10-2025   Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
                2) Figures to right indicate full marks.

Q.1 A) Multiple choice questions.   **10**

1) Which of the following is an essential process in which the intelligent methods are applied to extract data patterns?
   a) Warehousing
   b) Data Mining
   c) Text Mining
   d) Data Selection

2) Which of the following is the collection of data objects that are similar to one another within the same group?
   a) Partitioning
   b) Grid
   c) Cluster
   d) Table

3) The type of relationships in Star Schema_____.
   a) One to many
   b) Many to many
   c) Many to one
   d) One to one

4) Which of the following statements is incorrect about the hierarchal clustering?
   a) The hierarchal type of clustering is also known as the HCA
   b) The choice of an appropriate metric can influence the shape of the cluster
   c) In general, the splits and merges both are determined in a greedy manner
   d) All of the above

5) Which one of the following refers to querying the unstructured textual data?
   a) Information access
   b) Information Update
   c) Information Retrieval
   d) Information Manipulation

6) _____is a subject-oriented, integrated, time-variant, nonvolatile collection of data in support of management decisions.
   a) data mining
   b) web mining
   c) data warehousing
   d) text mining

7) Which of the following refers to the problem of finding abstracted patterns (or structures) in the unlabeled data?
   a) Supervised learning
   b) Unsupervised learning
   c) Hybrid learning
   d) Reinforcement learning

8) What are the functions of Data Mining?
   a) Association and correctional analysis classification
   b) Prediction and characterization
   c) Cluster analysis and Evolution analysis
   d) All of the above

9) Which type of regression that forms relationship between the target variable and one or more independent variables utilizing a straight line?
   a) Logistic Regression
   b) Linear Regression
   c) Lasso Regression
   d) Polynomial Regression

10) Which among the following is the irrelevant attribute to mine for the Credit Risk of the customer?
   a) Age
   b) Address
   c) Previous Credit Information
   d) Income

B) Fill in the blank **06**
   1) The self-organizing maps can also be considered as the instance of _____ type of learning.
   2) In data mining, _____ number of categories of functions are included.
   3) _____ table contain multidimensional data in data warehouse.
   4) The full form of KDD is _____.
   5) The star schema is composed of _____ fact table.
   6) _____ normalization is not very well efficient in handling the outliers.

Q.2 Solve the following. (Any Eight) **16**
   a) Define frequent item set.
   b) Define Classification.
   c) What is data reduction?
   d) What is spatial data mining?
   e) What is roll-up operation?
   f) What is mean by Clustering?
   g) What is data mining?
   h) Define the term OLAP?
   i) Define association rule mining.
   j) What is mean by Apriori Algorithm?

Q.3 A) Attempt the following. (Any Two) **10**
   1) Explain Model-Based Clustering Methods.
   2) Explain the representation of multidimensional model.
   3) Explain the steps involved in data preprocessing.

B) Explain KNN Algorithm in data mining. **06**

Q.4 A) Attempt the following. (Any Two) **08**
1) Explain star schema.
2) Explain Bayesian Classification.
3) Explain SVM algorithm.

B) Explain Data warehouse Architecture and its Components. **08**

Q.5 Answer the following. **16**
a) Explain classification by Decision tree induction Algorithm.
b) Explain APRIOIRI Algorithm in detail.
c) A database consists of 4 transactions taken from grocery store. Enumerate all the frequent item sets using Apriori algorithm with minimum support threshold S= 50% and minimum confidence threshold C=75%. Show the candidate and frequent item sets for each database scan. List all the association rules that are generated and highlight the strong ones, sort them by confidence.

Tid	Items
1	Bread, Cheese, Egg, Juice
2	Bread, Cheese, Juice
3	Bread, Milk, Yogurt
4	Bread, Juice, Milk

Seat No.		**Set**	**P**

B.C.A. (Semester - V) (New) (CBCS) Examination: October/November - 2025
.NET Core (BCA1504)

Day & Date: Friday, 31-10-2025　　　　　　　　　　　Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
　　　　　　　2) Draw neat diagrams and give equations wherever necessary.
　　　　　　　3) Figures to right indicate full marks.
　　　　　　　4) *Use of logarithmic table and calculator is allowed*

Q.1　A)　Multiple choice questions.　　　　　　　　　　　　　　10

1) Dyamic memory allocation can be done using?
   a) calloc()　　　　　　　　　b) Malloc()
   c) Both a & b　　　　　　　　d) Create()

2) CLS stands for_____
   a) Common Language Sales
   b) Common Language Specification
   c) Common Language Service
   d) Common Language Sector

3) Which datatypeis used to store text value in C#?
   a) Text　　　　　　　　　　b) txt
   c) String　　　　　　　　　d) Str

4) Which is the correct method to covert given string in Uppercase?
   a) Upper()　　　　　　　　　b) ToUpper()
   c) Upr()　　　　　　　　　　d) ToUpr()

5) How many types of Accecs modifier in C#?
   a) 2　　　　　　　　　　　　b) 3
   c) 4　　　　　　　　　　　　d) 5

6) Virtual function should be_____
   a) Public　　　　　　　　　b) Private
   c) Protected　　　　　　　　d) Default

7) Which of the following is part of the delegation process?
   a) Selecting the right person for the task
   b) Removing authority & responsibility
   c) Designing organization structure
   d) Received Feedback

8) Who developed Object Oriented Programming?
   a) Dennis Ritche   b) Charlas Babbage
   c) Alan Kay   d) Andrea Feroda

9) The process converting a Value type to a Reference type is Called _____.
   a) Unboxing   b) Boxing
   c) Parameter   d) enum

10) FCL stands for_____.
   a) Format Class Library   b) Framework Class Library
   c) Freenze Class Library   d) Feyol Class Library

B) Answer One Sentence: **06**
   1) Define DOT NET?
   2) Define Delegete?
   3) Define Methods?
   4) Define Thread?
   5) LINQ stands for?
   6) Define Lambdas?

Q.2 Solve the following. (Any Eight)   **16**
   a) What is Visual Studio?
   b) What is Generic?
   c) What is Sealed Class?
   d) What do you mean by Exception?
   e) What is Threading?
   f) What is Namespace?
   g) What is Resource Management?
   h) What is Mean by windows Application?
   i) What is mean by Unboxing?

Q.3 Attempt the following. (Any Two)   **10**
   a) Write down Characteristics of C#?
   b) What is Array? Explain the types of Array with Example?
   c) Define Constructor? Write down types of Constructors?

   B) Write down Short note of "Concept of OOPs"   **06**

Q.4 Attempt the following. (Any Two)   **08**
   a) Explain the advantages of using exception in c#?
   b) Explain the Datatype of C-Sharp?
   c) Write C-Sharp Code/program to find factorial number?

   B) Describe "Types of Statement in C#".   **08**

Q.5 **Answer the following. (Any Two)** **16**
    a) Explain the Component of .NET Framework?
    b) What is Operator? Explain the types of Operators?
    c) Write a C-Sharp Code/program to convert Number into Character?
        (For example. Input 423 Output Four two three)

Seat No.

B.C.A. (Semester - V) (New) (CBCS) Examination: October/November – 2025
Data Science using Python (BCA1505-A)

Day & Date: Saturday, 01-11-2025   Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
               2) Draw neat, labelled diagrams wherever necessary.
               3) Figures to right indicate full marks.
               4) Use of log table and Scientific calculator is allowed.

Q.1 A) Multiple choice questions.   **10**

1) How to slice an array n from index 2 to 4 in Numpy?
   a) n[2:5]   b) n[2:4]
   c) n[2-5]   d) n[2-4]

2) What is a correct syntax to print the number 8 from the array below:
arr = np.array([[1,2,3,4,5], [6,7,8,9,10]])
   a) print(arr[1, 2])   b) print(arr[3, 0])
   c) print(arr[7, 2])   d) None

3) _____ is important stage in the data science lifecycle to gather raw data from relevant sources.
   a) Data Preprocessing   b) Data Preparation
   c) Data collection   d) Discovery

4) _____ is a module of matplotlib library which allow users to create 2D plots and graphs.
   a) Plot   b) Pplot
   c) PyQt   d) PyPlot

5) Incomplete data may come from_____.
   a) human problems   b) faulty data collection
   c) errors in transmission   d) Human errors

6) Following type of classification metrics is used to evaluate the performance of a model.
   a) AUC   b) MAE
   c) MSE   d) RMSE

7) Following is qualitative method in primary data collection.
   a) Time Series Analysis   b) Smoothing Techniques
   c) Barometric Method   d) Observation

8) What is a correct syntax to create a Pandas DataFrame?
   a) pd.DataFrame(data)   b) pd.df(data)
   b) pd.dataframe(data)   d) pd.Dframe(data)

9) We can add a new row to a Data Frame using the ___method
   a) rloc[ ]   b) loc[ ]
   c) iloc[ ]   d) None of the above.

10) The command used to give a heading to a graph is_____
   a) plt.show()   b) plt.plot()
   c) plt.xlabel()   d) pit. Title().

B) Fill in the blank.   **06**
1) _____is the graphical representation of information and data Data Visualization
2) _____ measures the average squared difference between the predicted values and the actual values.
3) _____ is the fundamental package for scientific computing with Python.
4) _____ are conducted online through email, websites, or social media.
5) _____ is a correct syntax to check the number of dimensions in an array.
6) _____ are responsible to collect, analyze and interpret the data for future decision making.

Q.2 Solve the following. (Any Eight)   **16**
   a) What is Data Transformation?
   b) What is Series?
   c) What is Root Mean Square Error?
   d) What is underfitting?
   e) What is a Data Science?
   f) What is a model selection?
   g) What is a primary Data?
   h) What is sampling error?
   i) Which are different methods to read data from different types of files in pandas?
   j) Who is data analyst?

Q.3 A) Attempt the following. (Any Two)   **10**
   a) Explain Line graph with suitable example.
   b) Explain Data Binning method in detail.
   c) Explain applications of data science in detail.

   B) Explain various ways of creation of numpy arrays with suitable example.   **06**

Q.4 **A)** **Attempt the following. (Any Two)** **08**
1) Explain Data Reduction.
2) Explain Interviews with advantages and disadvantages.
3) Explain any four aggregate functions with example.

B) Following data is given: **08**
Find Mean Absolute Error, Mean Square Error, Root Mean Square Error

Item	Actual price	Predicted price
Necklace	25	28
Bracelet	15	14
Earrings	20	22
Ring	30	29
Brooch	40	38

Q.5 **Attempt the following. (Any Two)** **16**
a) Explain various stages of Data Science life cycle.
b) Explain various ways about creating and displaying dataframe.
c) Write a Python script to create a data frame and display bar plot for the following table:

Name	Mobile_Sales	TV_Sales
Arun	2540	2200
Omkar	1370	1900
Anita	1320	2150
Lokesh	2000	1850
Sarita	2100	1770
Lila	2150	2000

Seat No.		**Set**	**P**

B.C.A. (Semester - V) (New) (CBCS) Examination: October/November – 2025
Kotlin Programming (BCA1505-B)

Day & Date: Saturday, 01-11-2025　　　　　　　　　Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
　　　　　　　2) Draw neat, labelled diagrams wherever necessary.
　　　　　　　3) Figures to right indicate full marks.

Q.1　A)　Multiple choice questions.　　　　　　　　　　　　　　　10

1) Which Kotlin keyword makes a variable immutable?
   a) var
   b) val
   c) const
   d) let

2) What is the default return type of a Kotlin function if not specified and no return is used?
   a) void
   b) Unit
   c) Nothing
   d) Null

3) Which of the following Kotlin collection types is immutable by default?
   a) List
   b) MutableList
   c) Set
   d) MutableSet

4) Which function can be used to group elements of a collection by a specific key in Kotlin?
   a) groupBy()
   b) splitBy()
   c) group()
   d) groupByKey()

5) How do you define a nested class in Kotlin?
   a) By declaring a class inside another class
   b) By using the inner keyword
   c) By using the nested keyword
   d) By defining a static class

6) Which type in Kotlin can hold null value?
   a) String
   b) String?
   c) Char
   d) Int

7) What is the correct way to read a string input using Scanner?
   a) ReadLine()
   b) Scanner(System.in).getLine()
   c) Scanner(System.in).nextLine()
   d) Input.readString()

8) Which of the following is the correct way to define a class in Kotlin?
   a) class MyClass {var x: Int}
   b) class MyClass(var x: Int)
   c) class MyClass() { var x: Int}
   d) MyClass class { var x: Int}

9) Which of the following is NOT a valid Kotlin statement?
   a) var x = 0; x++;   b)   var x = 0; ++x;
   c) var x = 0; x = x + 1;   d)   var x = 0; x =++;

10) Which of the following is a valid inline function definition?
   a) inline fun log(message: String) = println(message)
   b) inline val log = println()
   c) inline class log()
   d) fun inline log(message: String)

**B) Fill in the blank/Definition/One sentence answer/ One word   06
     answer/ Give the name/Predict the product etc.**
   1) In Kotlin, a class can be inherited only if the base class is marked with the _____keyword
   2) The _____function compares two strings and returns 0 if both are equal.
   3) _____ type of loop is guaranteed to run at least once? .
   4) The_____ statement is used to jump out of a loop.
   5) _____ access modifier in Kotlin allows visibility only within the same module.
   6) In Kotlin _____ collection types stores key-value pairs.

Q.2   Solve the following. (Any Eight)   16
   a) What is Elvis operator in Kotlin?
   b) What is Equality and Inequality Operators?
   c) What is Object?
   d) What is Nullable and Non-nullable Types?
   e) What are the difference between Anonymous Function and Lambda Expression?
   f) What is a sealed class in Kotlin?
   g) What is a higher-order function in Kotlin?
   h) Write the use of, Increment and Decrement Operators.
   i) What is Advantages of Kotlin?
   j) How to Destructuring object in kotlin?

Q.3 A)   Attempt the following. (Any Two)   10
   1) What is Anonymous Function?
   2) Write a program to check given number is prime or not.
   3) What is Data types and explain different types of Data types?

B) Short notes on Array in kotlin.   **06**

Q.4 A) Attempt the following. (Any Two)   08
- a) What is Statement and explain flow control and looping statements.
- b) Write a Kotlin program that performs the following operations on a given string.
  1) Read string from user.
  2) Reverse string.
  3) Find length.
  4) Convert into upper case letter.
  5) Convert into lower case.
  6) Find the sub string.
  7) First occurrence of a specified text.
- c) Explain Abstract Class and Method.

B) Explain Kotlin collections: - array lists, sets, maps.   08

Q.5 Answer the following. (Any Two)   16
- **a)** What is inheritance and explain types of inheritance in kotlin.
- **b)** What is exception and explain how to handle exception with example.
- **c)** Write a Kotlin program that perform the following basic file operations.
  1) Create a new file.
  2) Write content to the file.
  3) Read content from the file.
  4) List all files in a directory.
  5) Delete a file.

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Set **P**

B.C.A. (Semester - V) (New) (CBCS) Examination: October/November – 2025
React JS (BCA1505-C)

Day & Date: Saturday, 01-11-2025   Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
               2) Draw neat, labelled diagrams wherever necessary.
               3) Figures to right indicate full marks.
               4) Use of log tables and calculators is allowed.

Q.1 A) Multiple choice questions.   **10**

1) Which of the following is a correct advantage of using ReactJS?
   a) Easy to learn
   b) Fast rendering using Virtual DOM
   c) Reusable components
   d) All of the above

2) JSX stands for_____.
   a) JavaScript and XML   b) Java and Syntax Extension
   c) Java Syntax Extension   d) Java Source Extension

3) Which method is called after a component is rendered for the first time?
   a) ComponentDidMount()   b) ComponentWillMount()
   c) Render   d) ComponentWillUpdate()

4) In React, data flows from_____.
   a) Child to Parent   b) Parent to Child
   c) Randomly   d) None

5) Which hook is used to manage state in a functional component?
   a) useRef   b) useState
   c) useEffect   d) useContext

6) The _____ operator is used for conditional rendering in React.
   a) ++   b) &&
   c) ==   d) =>

7) What does NPM stand for?
   a) Node Package Manager
   b) New Package Manager
   c) Node Program Management
   d) New Program Manager

8) What is the correct syntax for creating a reference in React?
   a) React.createRef()   b) React.newRef()
   c) React.useRef()   d) React.makeRef()

9) Redux follows the principle of_____ architecture.
   a) MVC   b) Flux
   c) MVT   d) MVVM

10) React Router is mainly used for_____.
   a) Handling events
   b) Making API calls
   c) Navigation between pages
   d) Managing State

B) Fill in the blank.   **06**
   1) _____is a JavaScript library for building user interfaces.
   2) _____ is used to apply logic inside JSX.
   3) _____and ____are the building blocks of React JS.
   4) _____ is the file where React project dependencies are listed.
   5) The component where you define and manage local state is called_____.
   6) In React, ____ hook is used for side-effects like API calls.

Q.2 Solve the following. (Any Eight)   **16**
   a) What is JSX? Why do we use JSX in React?
   b) Explain the difference between Functional Component and Class Component.
   c) List any four advantages of React JS.
   d) Write steps to setup the environment for ReactJS.
   e) What is Props? Explain with example.
   f) What is useRef()? Explain its usage.
   g) Explain Conditional Rendering using if-else statement.
   h) What is the purpose of Keys in Lists?
   i) Define Synthetic Event in ReactJS.
   j) Differentiate between Controlled and Uncontrolled Components.

Q.3 A) Attempt the following. (Any Two)   **10**
   1) Explain the Life Cycle Methods of Class Components with diagram.
   2) What are the types of Event Binding in ReactJS? Explain with examples.
   3) Explain State Lift-Up and its importance in ReactJS.

B) Write Short Notes on: **06**
   Environment Setup for ReactJS.

Q.4 A) Attempt the following. (Any Two)   **08**
   1) Explain the Architecture of Redux with neat diagram.
   2) Differentiate between Local State and Global State.
   3) Explain the concept of Controlled Forms in ReactJS.

B) Describe/Explain/Solve 08

Write the steps for Navigation between Routes using React Router.

Q.5 Attempt the following. (Any Two) 16

a) What are Hooks in ReactJS? Explain useState and useEffect hooks with examples.

b) Explain the procedure to pass data between components using Props.

c) Describe Form Validation in ReactJS with example.

Seat No.

B.C.A. (Semester - V) (New) (CBCS) Examination: October/November - 2025
Advanced Java (BCA1506)

Day & Date: Monday, 03-11-2025   Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams wherever necessary.
3) Figure to right indicate full marks.
4) Use of log table and calculator in allowed.

Q.1 A) Multiple Choice Question: 10

1) Which package is used for networking in java?
   a) java.util   b) java.io
   c) java.net   d) java.sql

2) Which interface in JDBC is used to execute SQL queries?
   a) Statement   b) Executor
   c) DataManager   d) SQLQuery

3) Which HTTP method is generally used to submit form data securely?
   a) GET   b) POST
   c) PUT   d) FETCH

4) Which of these is not a lifecycle method of a servlet?
   a) init()   b) run()
   c) service()   d) destroy()

5) JSP stands for:
   a) Java Standard Page   b) Java Servlet Page
   c) Java Server Page   d) Java Scripting Page

6) Which of the following is not a JSTL core tag?
   a) <c:if>   b) <c:choose>
   c) <c:formatDate>   d) <c:out>

7) Which annotation is used to mark a class as an entity in Hibernate?
   a) @Hibernate   b) @Entity
   c) @Table   d) @ORM

8) What is the default scope of a JavaBean in JSP?
   a) page   b) session
   c) application   d) request

9) Which Spring interface maps each row of a ResultSet to a Java object?
   a) ResultMapper
   b) RowMapper
   c) SQLMapper
   d) BeanMapper

10) Which one is not a type of collection mapping in Hibernate?
   a) list
   b) set
   c) queue
   d) map

B) **Fill in the blank/Definition/One sentence answer/ One word answer/ Give the Name/Predict the product etc.**   **06**
1) The method getParameter() is used to retrieve _____from request object.
2) JDBC stands for _____.
3) The method used to send a response from a servlet is _____.
4) The JSP action tag used to include a resource is _____.
5) In Hibernate, @OneToMany is an example of _____.
6) In Spring, _____ is used for injecting dependent objects.

Q.2 **Solve the following: (Any Eight)**   **16**
   a) Explain networking classes in Java with any two class names.
   b) What is the purpose of PreparedStatement? Give syntax.
   c) Explain RequestDispatcher with an example.
   d) What is a servlet? How does it differ from CGI?
   e) List and explain any four implicit objects in JSP.
   f) Explain the use of getProperty and setProperty in JSP.
   g) What is the architecture of Hibernate?
   h) Explain different types of dependency injection in Spring.
   i) Write a simple servlet program to display "Hello" from Servlet.
   j) What is the difference between include and forward in RequestDispatcher?

Q.3 **A)** **Attempt the following. (Any Two)**   **10**
   a) Write a JSP program to display student details using JavaBeans.
   b) Explain the advantages and disadvantages of cookies, hidden form fields, and URL rewriting.
   c) Explain Hibernate collection mapping types with examples.

B) Create a custom JSP tag that displays a current date and time and use it in a JSP page.   **06**

Q.4 **A)** **Attempt the following. (Any Two)**   **08**
   1) Write a servlet to demonstrate that use of RequestDispatcher interface.
   2) Explain Spring JDBC using JdbcTemplate with an example.
   3) Describe JSP life cycle.

B) Write a program to insert employee information such as id. name, salary, dept name, designation into Employee table using JSTL SQL Tags. **08**

Q.5 **Attempt the following. (Any Two)** **16**
   a) Write a program to insert book details sqch as book id.name.author.publisher and price into Book detail tables using hibernate annotation.
   b) Write a JSP page to implement implicit objects config and session.
   c) Write a servlet to implement cookies.

Seat No.

B.C.A. (Semester - V) (CBCS) Examination: October/November - 2025
Core Java (19409502)

Day & Date: Tuesday, 28-10-2025   Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
                      2) Figures to right indicate full marks.

Q.1 A)   Multiple choice questions.   10

1) A Java Class inherits Constants and Methods of an Interface using _____ keyword.
   a) Interface   b) Implements
   c) Extends   d) All of the above

2) Which of these access specifiers can be used for an interface?
   a) Public   b) Private
   c) Protected   d) All of the above

3) The keyword used to declare a Java package is_____
   a) pkg   b) package
   c) pkge   d) None of the above

4) Which are the keywords used to handle exceptions in Java?
   a) Try and catch   b) Finally
   c) Throw and Throws   d) All the above

5) The class which inherits the properties of other is known as ____
   a) super class   b) parent class
   c) subclass   d) None of the above

6) Which one of the following is not an access modifier?
   a) Protected   b) Void
   c) Public   d) Private

7) Which component is used to compile, debug and execute the java programs?
   a) JRE   b) JIT
   c) JDK   d) JVM

8) Which method can set or change the text in a Label?
   a) SetText ()   b) getText ()
   c) Both a and b   d) None of the above

9) Which one of the following is not a Java feature?
   a) Object-oriented
   b) Use of pointers
   c) Portable
   d) Dynamic and Extensible

10) What is the extension of java code files?
    a) .js
    b) .txt
    c) .class
    d) .java

B) Fill in the blank 06
1) Who invented Java Programming Language?
2) Thin driver is also known as_____
3) Java is a _____ programming language.
4) AWT Stands for_____.
5) _____ cannot be used as a variable for Java.
6) _____ keywords must be used to handle the exception thrown by try block in some rational manner.

Q.2 Solve any Eight of the following. 16
   a) What is mean by Inheritance in java?
   b) What is mean by Package?
   c) What is Resultset Metadata?
   d) What is Exception in java?
   e) What is Prepared Statement?
   f) Define the term Abstract class.
   g) Define the term Class and Objects.
   h) What is polymorphism in java?
   i) Define the term Adapters in java.
   j) What is Resultset Interface?

Q.3 A) Attempt the following. (Any Two) 10
   1) What is threading? Explain Java thread lifecycle.
   2) Describe exception handling in Java.
   3) Explain executeQuery() and executeUpdate() with example.

B) Write Short Notes on. 06
   1) Method Overriding
   2) Static and non-static data members

Q.4 A) Attempt the following. (Any Two) 08
   1) What is Array? Explain Types of Array with example.
   2) Define operator. Explain Arithmetic and Logical operator in java.
   3) Explain final' keyword with example.

B) Describe/Explain/Solve 08
   What is JDBC? Explain Feature & Architecture of JDBC.

Q.5 Attempt the following. (Any Two) 16
   a) Explain different Features of Java as programming language.
   b) Explain types of drivers with its advantage & disadvantage.
   c) List out different Java awt components. Explain window, Frame and Panel with example.

Seat No.

B.C.A. (Semester - V) (CBCS) Examination: October/November - 2025
Visual Programming (19409503)

Day & Date: Wednesday, 29-10-2025   Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to right indicate full marks.
3) Draw neat labelled diagrams wherever necessary.

Q.1   A) Choose the correct alternatives given below.   **10**

1) Number of static constructors a class can define is?
a) 1   b) 2
c) Any number   d) None of the mentioned

2) C# does not support:
a) Abstraction   b) Polymorphism
c) Multiple Inheritance   d) Inheritance

3) Abstract method must be contain in_____class.
a) Abstract class   b) Non abstract class
c) Both a) and b)   d) Sealed Class

4) Every class directly or indirectly extends the_____ class.
a) System   b) Object
c) Drawing   d) Console

5) The default scope for the members of an interface is _____.
a) Private   b) Internal
c) Protected   d) Public

6) In C#, which of the following is **not** a value type?
a) int   b) float
c) string   d) bool

7) Which keyword is used to achieve runtime polymorphism in C#?
a) virtual   b) static
c) sealed   d) const

8) Which keyword is used to declare a delegate?
a) event   b) delegate
c) func   d) action

9) Which event of a Button control is commonly used to handle user clicks?
a) OnClick   b) Pressed
c) Click   d) ButtonClick

10) What is String.Length in C#?
   a) Both a) and b)   b) Method
   c) Constructor   d) Property

B) Fill in the blanks.   **06**
   a) All classes in C# are reference types, which means they are stored on the _____.
   b) The exception that occurs when a requested file cannot be found is known as _____.
   c) The collection type that allows you to store key-value pairs is called a _____.
   d) _____Keyword is used for including the namespaces in the program in C# ?
   e) _____is file extension of a C# source file.
   f) Virtual method defined in _____class is inherited by it's derived class.

Q.2 Solve any Eight of the following.   **16**
   a) What is FCL?
   b) What are the types of constructor?
   c) What is CTS?
   d) What is structs?
   e) List out common control in windows form.
   f) What is Exception?
   g) What is garbage collector?
   h) What is delegate?
   i) List out access specifier.
   j) What is collection?

Q.3 A) Attempt the following questions. (Any Two)   **10**
   1) Write a program which can demonstrate the use of interface.
   2) Explain virtual method in Visual Programming.
   3) Explain try, catch and finally block in visual programing.

B) What is enumeration? Explain with example.   **06**

Q.4 A) Attempt the following questions. (Any Two)   **08**
   1) Explain anonymous method.
   2) Write a program which can implement stack collection.
   3) What is Dataset? What are the advantages of dataset.

B) Write a program which can implement multilevel inheritance.   **08**

Q.5 Attempt the following. (Any Two)   **16**
   a) Explain type of delegate with example.
   b) Write a program which can implement Array list method and properties.
   c) Design a window application which can insert, update student information (Roll no, name, address, Stream) using ADO.NET.

Seat No.

B.C.A. (Semester- V) (CBCS) Examination: October/November – 2025
Computer Graphics (19409504)

Day & Date: Thursday, 30-10-2025   Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
              2) Figures to right indicate full marks.

Q.1 A) Multiple choice questions.   **10**

1) In computer graphics, pictures or graphics objects are presented as a collection of discrete picture elements called _____.
   a) Dots   b) Pixels
   c) Coordinates   d) Points

2) The Process of determining the appropriate pixel for representing picture or graphics object is known as _____.
   a) Scan conversion   b) rasterization
   c) Scanning   d) Graphical representation

3) The computer graphics allows _____ on pictures before displaying it'.
   a) Rotation   b) Translation
   c) Scaling and projection   d) All of the above

4) Graphics devices include _____.
   a) Input devices   b) Output devices
   c) Both A and B   d) None of the above

5) Computer graphics allows _____.
   a) Process control   b) Cartography
   c) art and commerce   d) all of above

6) The most commonly used output device in a graphics system is _____.
   a) Mouse   b) Keyboard
   c) video monitors   d) none of these

7) Vector scan technique is also called _____.
   a) scalar scan   b) Random scan
   c) Raster scan   d) beam scan

8) In vector scan display, the display buffer memory used is also called _____.
   a) Refresh memory   b) Refresh buffer
   c) Buffer display   d) Refresh circuit

9) In vector scan display, the phosphor is to be refreshed at least _____ times per second to avoid flicker.
   a) 10   b) 20
   c) 30   d) 40

10) For _____ display scan conversion hardware is required.
   a) Vector scan   b) Random scan
   c) Raster scan   d) None of this

B) Fill in the blank.   **06**
   1) The process of. representing continuous picture or graphics object as a collection of discrete Pixels is called _____.
   2) Most of graphics monitor today operated as _____.
   3) Random scan monitors are also referred to as_____.
   4) _____ is the most commonly used boundary representation for a 3-dimensional graphics object?
   5) DDA stands for_____.
   6) The process of repositioning an object along a circular path is called _____.

Q.2 Solve the following. (Any Eight)   **16**
   a) What do you mean by computer graphics?
   b) What is clipping?
   c) What is vector graphics?
   d) List out various operations performed by Display controller.
   e) What do you mean by sharing?
   f) What is Plotter?
   g) What is Parallel projection?
   h) What is Boundary fill algorithm?
   i) What is windows?
   j) What is Trackball?

Q.3 A) Attempt the following. (Any Two)   **10**
   1) What are the applications of computer graphics?
   2) What is viewing transformation?
   3) What is 3D shearing? Explain 3D shearing in 3D geometrical transformations.

B) Short note/Solve.   **06**
   1) Ordered edge list algorithm.
   2) 3D transformation.

Q.4 A) Attempt the following. (Any Two)   **08**
   1) Explain Midpoint methods for line and circle.
   2) What is plasma panel? Explain merits & demerits of plasma panel display.
   3) Explain 2D reflection in details.

B) Describe/Explain/Solve. 08

Derive the transformation matrix for the rotation of graphics object about an arbitrary point.

Q.5 Attempt the following. (Any Two) 16

a) Explain DDA line drawing algorithm with suitable example.

b) 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.

c) What is transformation? Explain its types in detail?

| Seat No. | | Set | P |

B.C.A. (Semester - V) (CBCS) Examination:
October/November – 2025
Recent Trends in IT (19409505)

Day & Date: Friday, 31-10-2025   Max. Marks: 80
Time: 09:00 AM To 12:00 PM

Instructions: 1) All questions are compulsory.
             2) Figures to right indicate full marks.

Q.1 A) Multiple choice questions.   10

1) _____is a method of data analysis that uses machine learning algorithms?
   a) Predictive analytics   b) Prescriptive analytics
   c) Descriptive analytics   d) All of the above

2) The process of evaluating data through analytical and statistical tools.
   a) Data Mining   b) Data Exploration
   c) Data Analysis   d) Data Visualization

3) In which language is Hadoop written?
   a) C   b) Python
   c) Java   d) Ruby

4) The output of training process in machine learning is _____
   a) machine learning algorithm
   b) machine learning model
   c) null
   d) accuracy

5) The problem of finding hidden structures in unlabeled data is called_____.
   a) unsupervised learning   b) reinforcement learning
   c) supervised learning   d) none of these

6) Applications and services that run on a distributed network using virtualized resources is known as _____
   a) Parallel computing   b) Soft computing
   c) Distributed computing   d) Cloud computing

7) _____ has the world's largest Hadoop cluster
   a) Apple   b) Datamatics
   c) Facebook   d) None of the mentioned

8) Data science is the process of diverse set of data through?
   a) Organizing data
   b) Processing data
   c) Analysing data
   d) All of the above

9) Who is the father of data science?
   a) Rasmus Lerdorf
   b) James Gosling
   c) Guido van Rossum
   d) William S. Cleveland

10) Which of the following is the most important language for Data Science?
   a) Ruby
   b) R
   c) Java
   d) None of these

B) Fill in the blank. 06
1) _____ is a branch of AI and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy.
2) KVM Stands for_____.
3) Who is the father of cloud computing?
4) Graphical representation of a data set is called_____.
5) The process of evaluating data through analytical and statistical tools are called as_____.
6) Data with a large size is called as_____.

Q.2 Solve the following. (Any Eight) 16
   a) What is Big Data?
   b) What is Hadoop?
   c) What is Green IT?
   d) What is Distributed Processing System?
   e) What is Testing phase in Machine Learning?
   f) What are the uses of Data Science?
   g) What is the Internet of Things?
   h) What is Cloud Computing?
   i) What is Virtualization?
   j) What is Opportunity in Green IT?

Q.3 A) Attempt the following. (Any Two) 10
   1) Explain Cloud Cube Model in detail
   2) Explain characteristics of Big data.
   3) Explain Hadoop Architecture.

B) Short note/Solve. 06
   1) Role of a Data Scientist.
   2) Network virtualization.

Q.4 A) Attempt the following. (Any Two) 08
   1) Explain the Core Components of Hadoop?
   2) Explain types of Big Data.
   3) Explain IoT Architecture.

B) **Describe /Explain /Solve.** 08

What is Data Science? Explain benefits and uses of Data Science

Q.5 **Answer the following. (Any Two)** 16

a) Explain Classification of Machine Learning in detail.
b) What is Virtual Machines? Explain Architecture of Virtual Machines in detail.
c) What are the Environmental impacts of IT and explain the Holistic Approach to Greening IT.

Seat No.

Set **P**

B.C.A. (Semester - VI) (New) (CBCS) Examination: October/November - 2025
English
Business English (BCA1601)

Day & Date: Tuesday, 28-10-2025   Max. Marks: 40
Time: 03:00 PM To 05:00 PM

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

Q.1 Select the correct alternatives from the options.   08

1) What was found in Aksionov's luggage?
a) lots of money   b) a blood-stained knife
c) gifts for his family   d) samovar

2) According to Lal Bahadur Shastri, what is the most important responsibility of young citizens?
a) To serve the nation with sincerity and honesty
b) To lead a luxurious life
c) To travel abroad for education
d) To maintain good health

3) Robert Browning was a major _____ Poet of the Victorian age.
a) American   b) English
c) Indian   d) African

4) What are the things that are read or heard by us?
a) plays and classical music   b) novels and songs
c) lovely tales   d) poetry and western music

5) What is the tone of the poem "Endless Time"?
a) Angry and rebellious   b) Calm and reflective
c) Sad and regretful   d) Hopeful and energetic

6) What is the main theme of "Tree at My Window"?
a) Man's control over nature
b) Nature's indifference to human suffering
c) The silent understanding between nature and humans
d) The destruction caused by storms

7) Find the most appropriate option for the given blank space which can make the given sentence grammatically and contextually correct.

A few states across the country have remained _____ good.
a) relatively   b) vary
c) perfect   d) timely

8) Select the option that expresses the given sentence in indirect speech.

The mechanic said, 'I can fix your car by tomorrow'.
   a) The mechanic said that he could fix my car by tomorrow.
   b) The mechanic said that he could fix my car by the next day.
   c) The mechanic said that I could fix your car by the next day.
   d) The mechanic said that I could fix your car by tomorrow.

Q.2 Answer the following in brief. (Any Four)   **12**
   a) Why did Aksionov leave the inn early?
   b) Discuss the vision of Lal Bahadur Shastri regarding the role of young citizens in nation-building.
   c) Sketch the character, Duke.
   d) Write in brief about the poem Ode to Beauty.
   e) Write in brief about the poem Endless Time.
   f) Discuss the role of nature in the poem Tree at my Window.

Q.3 Answer the following. (Any One)   **10**
   a) How can technology literacy skills help learners in the future?
   b) Explain the concept of Civic Literacy and Health Literacy.

Q.4 Answer the following.   **10**
Discuss the significance of strong social skills in building relationships, teamwork, and conflict resolution. How can individuals improve their social skills?

Seat No.

B.C.A. (Semester - VI) (New) (CBCS) Examination: October/November - 2025
Network Security (BCA1602)

Day & Date: Wednesday, 29-10-2025   Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
              2) Figures to right indicate full marks.

Q.1 A) Multiple choice questions.   **10**

1) The information that gets transformed in encryption is_____
   a) Plain text
   b) Parallel text
   c) Encrypted text
   d) Decrypted text

2) _____ is a process which verifies the identity of a user who wants to access the system.
   a) Integrity
   b) Non-repudiation
   c) Authentication
   d) None of the above

3) Data encryption standard is a symmetric key _____ cipher.
   a) Stream cipher
   b) block cipher
   c) bit cipher
   d) byte cipher

4) A digital signature is a mathematical technique which validates___.
   a) Authenticity
   b) Integrity
   c) Non-repudiation
   d) All of the above

5) _____ type of encryption uses the same key for both encryption and decryption.
   a) Symmetric encryption
   b) Asymmetric encryption
   c) Hashing
   d) None of the above

6) _____ is used for encrypting data at network level.
   a) IPSec
   b) HTTPS
   c) PGP
   d) S/MIME

7) _____ is the first step in DES.
   a) S-box substitution
   b) Expansion permutation
   c) Key transformation
   d) P-box substitution

8) _____ is an objective of network security?
   a) Confidentiality
   b) Integrity
   c) Availability
   d) All of the above

9) DES consists of _____ rounds to perform the substitution and transposition Techniques.
   a) 21
   b) 18
   c) 16
   d) 25

10) In cryptography, the order of the letters in a message is rearranged by _____.
    a) Transpositional ciphers
    b) Substitution ciphers
    c) Quadratic ciphers
    d) None of These

B) Fill in the blank. 06
1) In _____ cryptography, the same key is used by the sender and the receiver.
2) _____ can provide authentication, integrity, and nonrepudiation for a message.
3) S/MIME Stands for _____.
4) After a message is encrypted, it is called _____.
5) The RSA algorithm for confidentiality uses _____ cryptography.
6) The full form of SET is _____.

Q.2 Solve the following. (Any Eight) 16
a) What is Cryptography?
b) What is plain text?
c) Define Message digests?
d) What is Asymmetric Key Cryptographic?
e) What is Cipher text?
f) What is Kerberos?
g) Define the term attacks.
h) What is Intruders?
i) What is Password?

Q.3 A) Attempt the following. (Any Two) 10
1) What is Security? Explain the need for security in details.
2) Explain encryption and decryption in Cryptography.
3) What is the MD5 Algorithm? Explain advantages and disadvantages of MD5 Algorithm.

B) Short note/Solve: 06
i) Message Authentication Code (MAC)
ii) Biometrics.

Q.4 A) Attempt the following. (Any Two) 08
1) What is Symmetric Key Cryptography? Features of Symmetric Key Cryptography.
2) What is SHA-512? Explain how SHA-512 Works?
3) What is Secure Socket Layer? Explain Working of SSL.

B) What Substitution techniques? Explain different Substitution **08**
techniques in Cryptography,

Q.5 **Answer the following. (Any Two)** **16**
   a) Explain Advanced Encryption Standard (AES) symmetric algorithms in
     details.
   b) What is Firewalls? Explain different types of firewalls.
   c) Explain a model for Network Security.

Seat No.

Set **P**

B.C.A. (Semester - VI) (New) (CBCS) Examination: October/November – 2025
Data Visualization using Power BI (BCA1603)

Day & Date: Thursday, 30-10-2025   Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat, labelled diagrams wherever necessary.
3) Figures to right indicate full marks.

Q.1 A) Multiple choice questions.   **10**

1) _____ can establish both one-way and bidirectional relationship between tables like Many to Many?
   a) RELATEDTABLE   b) INTERSECT
   c) RELATED   d) CROSSFILTER

2) _____visuals do not allow you to create data alerts.
   a) Funnel chart   b) KPI chart
   c) Gauge chart   d) Card chart

3) How can you create a chart visual in Power BI Desktop's Report view?
   a) Click New Visual on the Modelling tab
   b) Select a chart visual in the Visualizations pane
   c) Click New Visual on the Data Tools tab
   d) Select a field that contains values

4) If an address column contains the city, state, and postal code, and you want to separate these fields for use in a map visualization, which data transformation should you apply?
   a) Replace values   b) Modify data type
   c) Split column   d) Best fit geospatial

5) You have a Power BI report with a bar chart and a donut chart on the same page. The bar chart shows total sales by year, while the donut chart shows total sales by category. You want to ensure that when you select a year on the bar chart, the donut chart stays unchanged. What should you do?
   a) Set a visual level filter on the bar chart
   b) Edit the interactions form the Format menu
   c) Set a visual level filter on the donut chart
   d) Add a slicer to the page using the year column

6) Your computer rental dataset includes columns for StartTime, EndTime, and PerHourRate. _____ two DAX functions could you use to calculate the total earned for rentals?
   a) SUMX and DATEDIFF
   b) SUMX and ADDDATE
   c) SUM and DIFFDATE
   d) COUNT and SUM

7) _____ feature of Q&A allows you to ask questions and refine your visualizations?
   a) Error dialogs
   b) Autocomplete
   c) Tooltips
   d) All of these

8) You have two Excel spreadsheets containing data from separate reporting units, both with the same column names. Which Power Query Editor feature can you use to combine them into one unified dataset?
   a) Unify
   b) Insert
   c) Merge
   d) Append

9) After importing a large dataset from Excel into Power BI, you suspect some columns may contain missing values. Which feature in Power Query allows you to quickly view the percentage of empty cells in each column?
   a) Column quality
   b) Column Profile
   c) Show whitespace
   d) Column distribution

10) A retail company and have a table with customer_details and a second table with customer_orders details. Both tables have 'CustomerID' common field. A company manager wants to create a new table that shows customer details with their order data? Which transform should you use to create the dataset?
   a) Append queries as new
   b) Append queries
   c) Merge queries as new
   d) Merge queries

B) Fill in the blank.   06
   1) The _____visual allows users to track progress toward a specific goal or target?
   2) The _____DAX formula used to add a column that display the date in the format of December 01, 2024.
   3) _____reshapes data by turning unique values into column headers.
   4) _____operations adds rows to an existing table?
   5) _____operation allows to fill up and fill down to replace null values with the last non-empty value in a column.
   6) _____ join returns only the non-matching rows from the left table.

Q.2 **Solve the following. (Any Eight)** **16**
  a) What is difference between Reports and Dashboards?
  b) What are different types of tables?
  c) State the difference between SUM and SUMX Function?
  d) What are the options available for Index Column?
  e) Define right anti join.
  f) Define use of clustered bar chart.
  g) What are the building blocks of Power BI?
  h) What is the purpose of Group By?
  i) What is the use of "Detect Data Type" feature in Power Query?
  j) Define the Map Properties.

Q.3 **A)** **Write short notes. (Any Two)** **10**
  1) How line chart is differ from an area chart?
  2) Explain text filters options.
  3) What are the limitations of hierarchy? How do you add a hierarchy?

  B) What is a KPI? Why is it important? Explain the essential elements **06** of a KPI with example.

Q.4 **A)** **Attempt the following (Any Two)** **08**
  1) Describe the architecture of Power BI with the help of a diagram.
  2) Why is it useful to reorder columns in Power BI? Explain its properties.
  3) Explain the active and inactive relationships.

  B) How would you manage noisy data? Explain the different types of **08** row removal techniques.

Q.5 **Attempt the following. (Any Two)** **16**
  a) What is a Matrix and its Purpose? How does it differ from a Table?
  b) What is the purpose of a Slicer? Explain the different types of slicers.
  c) Consider following employee dataset and write a DAX queries for the following question.

Emp _No	Region	Emp_Name	Gender	Date of Birth	Date of Hiring	Salary
1	East	Hari Krishna	M	03-01-1977	01-06-2006	45,000.00
2	West	Priya Dixit	F	23-04-1999	01-02-2007	25,000.00
3	East	Kalyan Kumar	M	30-11-1987	06-08-2005	24,000.00
4	East	Hemant Sarvani	M	29-05-1993	13-01-2010	22,000.00
5	West	Arpita Mishra	F	25-09-1997	28-10-2014	20,001.00
6	East	Ram Sastry	M	04-06-1988	21-09-2012	15,800.00
7	North	Sonio Moreo	F	20-08-1982	15-11-2013	20,345.00
8	West	Geeta Chowdari	F	26-12-1996	12-02-2008	35,789.00
9	North	Shyam Mohan	M	22-11-1994	15-05-2016	28,349.00
10	North	John George	M	13-02-1984	01-09-2008	30,000.00

a) Calculate the total salary by region.
b) Display the count of employees gender-wise.
c) List the employees hired before 2010.
d) Find out how many years each employee has worked.
e) Display the highest salaried employee.
f) Find the youngest employee.
g) Find out the average age of employees.

Seat No.		Set	P

B.C.A. (Semester - VI) (New) (CBCS) Examination
October/November – 2025
ASP.Net Core (BCA1604)

Day & Date: Friday, 31-10-2025   Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat labelled diagrams wherever necessary
3) Figures to right indicate full marks.

Q.1 A) Choose and write correct answer from given alternatives.   10

1) Out-of-process hosting uses _____.
   a) IIS as a reverse proxy
   b) A separate Kestrel server process
   c) Both A and B
   d) None of these

2) Middleware components are configured in _____
   a) Appsettings.json   b) Program.cs
   c) Launchsettings.json   d) View

3) Which of the following is the feature of ASP.NET Core?
   a) Open-source   b) Cross-platform
   c) Modular framework   d) All of these

4) _____ are responsible for handling HTTP requests and returning responses, but they do not define the middleware pipeline.
   a) Controllers   b) View
   c) Models   d) All of these

5) Static file middleware is added using_____.
   a) UseFiles()   b) UseStaticFiles()
   c) AddStaticFiles()   d) EnableStaticFiles()

6) What does the [Key] attribute do in EF Core?
   a) Marks a property as nullable
   b) Marks a property as a primary key
   c) Sets max length
   d) Specifies a column name

7) Which of the following is true about Distributed sessions?
   a) They perform faster than In-Memory sessions
   b) They allow session persistence across multiple servers
   c) They are suitable only for development environments
   d) They are automatically garbage collected

8) In ASP.NET Core MVC, views are typically written in____.
    a) Razor syntax   b) JavaScript
    c) PHP   d) Python

9) In ASP.NET Core, Dependency Injection is_____.
    a) Used only for logging
    b) Optional for controller actions
    c) Built-in and used to inject services into classes
    d) Manually configured for every component

10) Controllers are responsible for_____.
    a) Handling incoming requests
    b) Interacting with models
    c) Returning responses
    d) All of the above

B) Fill in the blank.   **06**

1) _____are used for rendering user interfaces and displaying data, but they do not define the middleware pipeline.
2) Kestrel is_____.
3) Generally use a Hidden HTML Helper is_____.
4) Non-persistent cookies removed when_____.
5) _____routing technique gives more control over the route templates at the action level.
6) _____interface in ASP.NET Core is used to handle uploaded files.

Q.2 Solve the following. (Any Eight)   **16**
  a) How do you configure middleware in ASP.NET Core?
  b) What is the importance of a Controller?
  c) How do you configure a default route in MVC?
  d) Explain the concept of MVC Scaffolding.
  e) List the types of Dependency Injection
  f) Give the importance of Layout page.
  g) List various return types of an Action Method.
  h) What is a Partial View in MVC?
  i) Give any two limitations of Cookies.
  j) Differentiate between DropDownList andListBox.

Q.3 A) Attempt the following. (Any Two)   **10**
  1) Explain the use of the launchSettings.json file for setting up the application's environment and URL.
  2) What is Middleware? Explain with suitable example
  3) Explain conventional based routing.

B) Write short note on SSMS.   **06**

Q.4 A) **Attempt the following. (Any Two)** **08**
   1) Differentiate between ViewData and ViewBag with suitable example.
   2) Demonstrate the use of [Required], [MaxLength], and [MinLength] attributes in a model class with appropriate examples.
   3) Discuss how stored procedures can be used for CRUD operations in Entity Framework Core.

B) What is Session? Explain with suitable example. **08**

Q.5 **Answer the following (Any two)** **16**
   a) WhatisCode-first approach?Explain differentsteps to implement it.
   b) Discuss the various methods to handle the values submitted from DropDownList, RadioButton, CheckBox, and ListBox in an ASP.NET Core.
   c) What is model binding? Explain different types of model binding.

Seat No.

Set | **P**

B.C.A. (Semester - VI) (New) (CBCS) Examination: October/November – 2025
Linux and Shell Programming (BCA1605-A)

Day & Date: Saturday, 01-11-2025
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

Instructions: 1) All questions are compulsory.
2) Draw neat labelled diagrams wherever necessary
3) Figures to right indicate full marks.

Q.1 A) Multiple choice questions. 10

1) All directories are stored under one main directory called_____.
   a) Server
   b) Home
   c) Folder
   d) Root

2) Linux default shell is_____.
   a) BAH Shell
   b) SH shell
   c) ASH shell
   d) BASH shell

3) Help for all commands is available at ____.
   a) Man command
   b) Help command
   c) Join command
   d) Tput command

4) Which of the following is used to append the contents of a file?
   a) =
   b) >>
   c) <
   d) >

5) When you are in the command mode, what takes you to the line editing mode?
   a) Cursor
   b) : colon
   c) Esc
   d) Enter

6) Linux systems allow many users to work
   a) Simultaneously
   b) Constantly
   c) Separately
   d) None

7) The first _____ always represents the root directory.
   a) - minus
   b) / slash
   c) ∗ asterisks
   d) +plus

8) The ____ interacts with the hardware and the____ interacts with the user.
   a) Kernel,Shell
   b) Mail,system
   c) Processor, administrator
   d) None of these

9) In date command format, each format is preceded by_____ symbol, followed by the_____ operator & a single character describing the format.

   a) '-','*'   b) '+','%'
   c) '#','='   d) '!','$'

10) -r option of tar command___.
   a) Adds files to an existing archive
   b) Creates a new tar archive in reverse order
   c) Outputs the contents of an archive in reverse order
   d) All the above

B) Answer in one word.   **06**
1) What command is used with vi editor to delete a single character?
2) Which command is used to display current working directory?
3) Which command can be used in Linux to assign the same name to two files?
4) which command is used to count number of lines in a specific file?
5) In which directory user passwords are stored in Linux?
6) What is the name of the text-based calculator in Linux?

Q.2 Solve the following. (Any Eight)   **16**
a) What is Piping?
b) What is Process Id?
c) Explain Inode Block.
d) Explain Head & Tail with example.
e) List any four Linux Distributions.
f) Explain chgrp with example.
g) Explain directory creation & deletion commands with example.
h) Explain any two communication commands with example.
i) Differentiate between CP and MV command.
j) Explain file creation & deletion command with example.

Q.3 A) Attempt the following. (Any Two)   **10**
   a) Explain Redirection inLinux with suitable example.
   b) What are Filters in Linux? Explain any 3 filters with example.
   c) Explain Vi- Editor in detail.
B) Explain Meta characters in Linux.   **06**

Q.4 A) Attempt the following. (Any Two)   **08**
   a) Explain roles and responsibilities of system administrator.
   b) Explain Linux file system with suitable diagram.
   c) Explain premature termination of process with example.
B) Explain control structures in Linux with example.   **08**

Q.5 **Answer the following (Any two)** **16**

    a) Explain File Permissions in Linux. Explain Relative method with example.

    b) Explain Architecture of Linux system with suitable diagram.

    c) Write a shell script to display following Menu:
        Menu:
        1) Copy File.
        2) Remove File.
        3) Display current directory.

Seat No.

B.C.A. (Semester - VI) (New) (CBCS) Examination: October/November – 2025
Mobile Application Development using Kotlin (BCA1605-B)

Day & Date: Saturday, 01-11-2025　　　　　　　　　　Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
　　　　　　　　2) Draw neat, labelled diagrams wherever necessary.
　　　　　　　　3) Figures to right indicate full marks.

Q.1　A)　Multiple choice questions.　　　　　　　　　　　　　10

1) Which of the following virtual machine is used by the Android operating system?
   a) JVM　　　　　　　　　　b) Dalvik virtual machine
   c) Simple virtual machine　d) None of the above

2) What is the use of content provider in Android?
   a) For storing the data in the database
   b) For sharing the data between applications
   c) For sending the data from an application to another application
   d) None of the above

3) Which of the following android components display the part of an activity on screen?
   a) View　　　　　　　　　　b) Manifest
   c) Intent　　　　　　　　　d) Fragment

4) What is contained in manifest.xml?
   a) Source code
   b) List of strings used in the app
   c) Permission that the application requires
   d) None of the above

5) Which of the following is a dialog class in android?
   a) AlertDialog　　　　　　　b) DatePicker Dialog
   c) ProgressDialog　　　　　d) All of the above

6) Which of the following is the built-in database of Android?
   a) SQLite　　　　　　　　　b) MySQL
   c) Oracle　　　　　　　　　d) None of the above

7) Which of the following class in android displays information for a short period of time and disappears after some time?
   a) toast class　　　　　　　b) log class
   c) maketest class　　　　　d) none of the above

8) What is Gradle primarily used for in Android development?
   a) Project Dependency Management
   b) Code Rendering
   c) Data Retrieval
   d) Networking

9) Which API is used for integrating Google Maps into an Android app?
   a) Fused Location Provider API
   b) Maps SDK for Android
   c) Geofencing API
   d) LocationManager API

10) What is the purpose of the "BroadcastReceiver" in Android?
   a) Listen for system-wide events or messages
   b) Communicate with other apps
   c) Handle background tasks
   d) Display a UI component

B) Fill in the blank. 06
   1) _____ element is used to display Google map in your
   2) _____ Component represents the single screen with the user interface
   3) _____is most commonly used to align views in a single row or column in Anroid.
   4) _____method is the first callback method invoked by the system during an activity life-cycle.
   5) The android OS is based on _____ Kernel.
   6) The full form of URL is _____

Q.2 Solve the following. (Any Eight) 16
   a) Write a note on label.
   b) What is EditText?
   c) What is Gradle?
   d) What is use of Geocoding?
   e) What is APK?
   f) Explain seek bar.
   g) What is the uses of Android?
   h) What is the use of Toggle Button?
   i) Write use of execSQL() method.
   j) What is Manifest.xml in android?

Q.3 A) Attempt the following. (Any Two) 10
   a) Explain Radio Group and Radio Button?
   b) What is intent? Explain type of Intent.
   c) Write a note on Android Application store.

   B) Create application using Android for addition of two numbers. 06

Q.4 A) Attempt the following. (Any Two)   08

    a) Explain Content Provider?

    b) Write a note on Value folder.

    c) Explain how to create the first android application which display the message "Welcome in android programming" step by step.

B) What is Activity? Write the list of methods in Activity.   08

Q.5 Attempt the following. (Any Two)   16

    a) What are different Android Layout? Explain anyone.

    b) Explain directory Structure of Android application.

    c) What are the basic views that can be used to design the UI of android applications?

Seat No.

B.C.A. (Semester - VI) (New) (CBCS) Examination: October/November – 2025
Internet of Things (BCA1605-C)

Day & Date: Saturday, 01-11-2025   Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
                2) Draw neat diagrams wherever necessary.
                3) Figure to right indicate full marks.
                4) Use of log table and calculator in allowed.

Q.1 A) Choose the correct alternatives: **10**

1) Which of the following is an example of an IoT application?
    a) Online shopping   b) Smart home automation
    c) Social media   d) E mail

2) What does IoT stand for?
    a) Internet of Technology
    b) Internet of Terminals
    c) Internet of Telecommunications
    d) Internet of Things

3) What is the primary function of a sensor in IoT?
    a) To actuate devices
    b) To communicate with other devices
    c) To process data
    d) To collect data from the environment

4) Which of the following is false about IoT devices?
    a) IoT devices are completely safe
    b) IoT devices need microcontrollers
    c) IoT devices use wireless technology
    d) IoT devices use the internet for collecting and sharing data

5) Which programming language is used by Arduino IDE IoT software for writing codes?
    a) C/C++   b) Java
    c) Python   d) PHP

6) Which of the following is the way in which an IoT device is associated with data?
    a) Internet   b) Network
    c) Automata   d) Cloud

7) The number of elements in the Open IoT Architecture?
   a) Seven elements   b) Four elements
   c) Six elements   d) Three elements

8) Which of the following is true about Arduino IoT devices?
   a) They can only read analog inputs
   b) They don't have pre-programmed firmware
   c) They have their own operating systems
   d) They are open-source software

9) What is the primary goal of IoT?
   a) To reduce device costs
   b) To enable devices to communicate and interact with each other
   c) To improve device performance
   d) To create more devices

10) What is a key challenge in IoT security?
   a) Network congestion   b) Device authentication
   c) Data encryption   d) All of the above

B) Fill in the blank.   **06**
1) One of the key features of IoT is the ability of devices to collect and exchange _____ with each other and the cloud.
2) IoT enables _____ control and monitoring of devices and systems remotely.
3) The use of _____ devices in IoT applications enables more accurate and efficient data collection.
4) Sensors in IoT convert_____ parameters into electrical signals that can be processed by microcontrollers.
5) Light sensors are also known as
6) IoT applications include _____ cities, industrial automation, and healthcare monitoring.

Q.2 Solve the following: (Any Eight)   **16**
  a) What is cloud computing?
  b) What is sensor?
  c) What is warehouse?
  d) What are Microcontrollers?
  e) Write two applications of IoT
  f) Define a Brownfield.
  g) What is smart object?
  h) What is Arduino?
  i) What is IoT?
  j) What is Zigbee network layer?

Q.3 A) Attempt the following. (Any Two)   **10**
     a) Explain various types of sensors used in IoT.
     b) Write on: M2M and WSN protocol.
     c) Explain structure and working of the IoTivity in detail.

B) What are the different challenges in IoT?   **06**

Q.4 A) Attempt the following. (Any Two)   **08**
     a) What are characteristics of IoT?
     b) Discuses various issues and needs of IoT Security.
     c) Explain the IEEE 802.15.4 protocol and its significance in IoT.

B) What are Levels of IoT? Explain with its diagrams.   **08**

Q.5 Answer the following. (Any Two)   **16**
     a) Explain the IoT architecture in detail.
     b) Explain the various applications of IoT.
     c) Explain the fog computing in detail.

B.C.A. (Semester - VI) (New/Old) (CBCS) Examination: October/November - 2025
English (Comp.)
Business English (19409601)

Day & Date: Tuesday, 28-10-2025　　　　　　　　　　Max. Marks: 40
Time: 03:00 PM To 05:00 PM

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

Q.1　Select the correct alternatives from the options.　　　　　　08
　1)　How old is Robert Quick?
　　　a)　Fifty-two　　　　　　　　b)　Fifty-five
　　　c)　Fifty-four　　　　　　　　d)　Fifty-eight

　2)　_____ is the author of God Sees the Truth but Waits.
　　　a)　Joyce Cary　　　　　　　b)　Leo Tolstoy
　　　c)　Robert Browning　　　　　d)　John Keats

　3)　Toru Dutt was an _____ Poet.
　　　a)　American　　　　　　　　b)　British
　　　c)　Indian　　　　　　　　　d)　Anglo-Irish

　4)　Robert Browning was born in _____.
　　　a)　1811　　　　　　　　　　b)　1812
　　　c)　1813　　　　　　　　　　d)　1814

　5)　The Poem "ode to beauty" is the first stanza of Keats' poetic romance _____ Published in 1818.
　　　a)　Endymion　　　　　　　　b)　Lamia
　　　c)　Hyperion　　　　　　　　d)　Isabela

　6)　What foretells a pleasant day?
　　　a)　light morning rain　　　　　b)　light morning sun
　　　b)　light morning wind　　　　　d)　light morning storm

　7)　Which of the following given option is NOT an adverb?
　　　a)　Creatively　　　　　　　　b)　Rarely
　　　c)　Greedy　　　　　　　　　d)　None of the above

　8)　She says, "I eat a mango a day."
　　　(Change the sentence direct to indirect speech)
　　　a)　She said that she ate a mango a day.
　　　b)　She says that she eats a mango a day.
　　　c)　That she eats a mango a day was said by her.
　　　d)　She said that she eats a mango a day

Q.2 **Answer the following in short. (Any Four)** **12**
  a) How did the children behave with the dog?
  b) How was the merchant killed?
  c) Write a brief summary of the poem "Sita".
  d) Sketch the character, Duke.
  e) What are the things of beauty mentioned in the poem?
  f) Write a brief summary of the "life".

Q.3 **Write short notes on the following. (Any One)** **10**
  a) Explain the concept of Information literacy and Technology Literacy.
  b) Mention four habits which show that you are conscious of the environment and understand the need to conserve it.

Q.4 **Answer the following.** **10**
  Explain the concept of 'Life Skills (FLIPS)' in detail.

Seat No.			Set	P

B.C.A. (Semester - VI) (New/Old) (CBCS) Examination: October/November – 2025
Advanced Java (19409602)

Day & Date: Wednesday, 29-10-2025　　　　　　　　　　Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
　　　　　　　　2) Figures to the right indicate full marks.
　　　　　　　　3) Draw neat labelled diagrams wherever necessary.

Q.1 A) Select the correct alternative.　　　　　　　　　　10

1) Which packages represent interfaces and classes for servlet API?
   a) javax.servlet.*
   b) javax.servlet.http.*
   c) both a) and b)
   d) javax.servlet.api.*

2) Which JSP tag is used for java bean?
   a) jsp:useBean
   b) JSP:setProperty
   c) jsp:getProperty
   d) All of these

3) Which Core iterator tag allows us to iterate over the body content a set number of times?
   a) <c:forEach>
   b) <c:forLoop>
   c) <c:forTokens>
   d) <c:forWhen>

4) The life cycle of a servlet is managed by _____.
   a) ServletContext
   b) ServletConfig
   c) Both A) and B)
   d) ServletContainer

5) In which inheritance strategy, we can map the whole hierarchy by single table only and an extra column also known as discriminator column.
   a) TPH
   b) TPC
   c) TPS
   d) All of these

6) The _____ tag is used for creating a simple data source suitable only for prototyping.
   a) <sql:setDataSource>
   b) <sql:getDataSource>
   b) <sql:connection>
   d) <sql:DriverManager>

7) Which method is used to initialize a servlet?
   a) start()
   b) initialize()
   c) setup()
   d) init()

8) Hibernate framework is used for_____.
   a) Database mapping
   b) Design Web pages
   c) Data Validation
   d) All of these

9) What are different types of Bean injection in spring?
a) Constructor   b) setter
c) setter and getter   d) both a) and b)

10) Which driver is called as thin driver in JDBC?
a) Type-4driver   b) Type-1driver
c) Type-3 driver   d) Type-2 driver

B) **Fill in the blank/Definition/One sentence answer/ One word**   **06**
answer/ Give the name/Predict the product etc.
1) _____ JSTL tags deals with date, number, and message formatting
2) _____ Jsp tag Contain Java code.
3) _____ annotation specifies that the class is an entity and will be mapped to a database table.
4) DTD stands for _____.
5) MVC stands for_____.
6) In _____strategy, each class in the hierarchy is mapped to its own table, but each table will contain all the fields for the entire class hierarchy, including those inherited from the parent class.

Q.2 **Solve the following (Any Eight)**   **16**
a) Describe the various steps of JDBC.
b) What is a Servlet?
c) What is the difference between a Generic Servlet and HTTP Servlet?
d) Explain steps to establish JDBC Connections.
e) What are JSP declarations?
f) What is ORM?
g) What are various attributes Of page directive?
h) What are the use of Spring.
i) What is IOC in Spring?
j) What are the core interfaces of hibernate.

Q.3 **A)** **Attempt the following (Any Two)**   **10**
1) Explain different JSP tags with a program.
2) Write a program to display student records from Student table (use oracle Database, Type-4 drive)
3) What is hibernate? Explain advantages of Hibernate.

B) Explain types of JDBC drivers with suitable example.   **06**

Q.4 **A)** **Attempt the following (Any Two)**   **08**
1) Write a program to demonstrate how parameters can be accessed from HTML using JSP.
2) What is cookies and explain advantages and disadvantages of cookies in servlet?
3) Explain spring Dependency Injection in detail.

B) Short note on Spring JDBC template.   **08**

Q.5 **Attempt the following (Any Two)** 16
   a) Explain CallableStatement and PreparedStatement with example.
   b) Write a program to implement TPH inheritance strategy in hibernate.
   c) Explain different types of Action tags in JSP.

<table>
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Set **P**

B.C.A. (Semester - VI) (New/Old) (CBCS) Examination: October/November – 2025
Dot Net Technology (19409603)

Day & Date: Thursday, 30-10-2025   Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat, labelled diagrams wherever necessary
3) Figures to right indicate full marks.

Q.1 A) Multiple choice questions.   **10**

1) The ASP.NET Web Form class inherit by default from _____ class.
   a) System.Web.UI.Page   b) System.Web.UI.Form
   c) System.Web.GUI.Page   d) System.Web.Form

2) The _____ objects maintains data across users.
   a) Server   b) Response
   c) Application   d) Session

3) By default, ASP.NET stores SessionIDs in _____.
   a) Cache   b) Cookies
   c) Database   d) Global Variable

4) Database connections, Error Page setting and other application settings can be done in the _____ file.
   a) Webconfig.config   b) App.Config
   c) Application.Config   d) Web.Config

5) In ASP.NET, personalization is mostly used with _____ controls.
   a) GridView   b) Web Parts
   c) TextBox   d) DropDownList

6) The _____ control provides a way o make sure that the user enters a value into a field.
   a) requiredfield validator   b) compare validator
   c) range validator   d) custom validator

7) The _____ property of TextBox control is used to set for a single-line or Multiline Text.
   a) Row   b) Maxlength
   c) Text mode   d) MultiLine

8) The _____ method of command object supports fast-forward-only, read-only access to retrieve rows from the data source.
   a) ExecuteNonQuery()   b) ExecuteScalar()
   c) ExecuteRead()   d) ExecuteReader()

9) To bind an external XML file to a Tree View, _____ property of the XmlDataSource should be set.
   a) DataMember   b) DataFile
   c) ConnectionString   d) SourcePath

10) The EditItemIndex property of the DataGrid control should be set to _____ after the data source updation by the UpdateCommand event handler.
    a) 0   b) 1
    b) -1   d) 2

B) Fill in the blanks.   **06**
   1) File Extension for a web service file created in .NET Framework is _____.
   2) The _____ directive's Duration attribute determines how long the page is cached.
   3) The_____ control has a in-built support for Sort, Filter and paging the Data.
   4) The _____ method do you invoke on the DataAdapter control to load your generated dataset with data.
   5) AJAX stand for_____.
   6) The _____ control is used in the master page to define areas where content pages can inject their content.

Q.2 Solve of the following. (Any Eight)   **16**
   a) Explain Timer control with example.
   b) Explain Cross page posting with example.
   c) List all directives used in Asp.Net.
   d) Explain querysttring.
   e) What is ContentPlaceHolder? Explain its uses.
   f) What is Themes and skins? Give example.
   g) Explain any two validations with syntax.
   h) Explain View and MultiView control with example.
   i) Explain WebPartManager.
   j) Explain use of script manager.

Q.3 A) Attempt of the following. (Any Two)   **10**
   1) Explain Data Reader and Data Adapter with example.
   2) What is dynamic compilation? Explain compilation technique in detail.
   3) Create web service for addition of two number and consume it.

B) Write web application which demonstrate \App_GlobalResources.   **06**

Q.4 A) Attempt of the following. (Any Two)   **08**
    1) Explain Global.asax file in detail.
    2) What is validation group? Explain with example.
    3) What is master page? Why it is required.

B) Create web application which show our exam schedule in calendar   **08**
    control.

Q.5 Solve the following. (Any Two)   **16**
   a) Create web site which insert and update record using stored
      procedure.
   b) What is client side and server-side state management technique?
      Explain Application state in detail.
   c) What is sitemap file? Explain how to attach XML file to tree view and
      menu control with example.

| Seat No. | | Set | P |

B.C.A. (Semester - VI) (New/Old) (CBCS) Examination: October/November – 2025
Data Warehouse and Data Mining (19409604)

Day & Date: Friday, 31-10-2025　　　　　　　　　　　Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
　　　　　　　　2) Draw neat labelled diagrams wherever necessary
　　　　　　　　3)Figures to right indicate full marks.

Q.1　A)　Multiple choice questions.　　　　　　　　　　　　　　　　10
　　1)　Which algorithm is primarily used for generating association rules?
　　　　a)　Decision Tree Algorithm　　b)　Apriori Algorithm
　　　　c)　K-Means Algorithm　　　　　d)　Linear Regression Analysis

　　2)　In Data Mining, the process of identifying patterns in data is known as?
　　　　a)　Data Summarization　　　b)　Data Visualization
　　　　c)　Data Analysis　　　　　　d)　Knowledge Discovery

　　3)　The partition of an overall data warehouse is_____
　　　　a)　database　　　　　　　　b)　data cube
　　　　c)　data mart　　　　　　　　d)　operational data

　　4)　Hidden knowledge can be found by using ____.
　　　　a)　Searching algorithm　　　b)　pattern recognition algorithm
　　　　c)　clues　　　　　　　　　　d)　None of these

　　5)　The data restored in data warehouse.
　　　　a)　Operational　　　　　　　b)　historical
　　　　c)　transactional　　　　　　d)　Optimized

　　6)　Which of the following is a method used for binary classification?
　　　　a)　Clustering
　　　　b)　Logistic Regression
　　　　c)　Principal Component Analysis
　　　　d)　K-Means

　　7)　What technique is used to avoid overfitting in model evaluation?
　　　　a)　Underfitting　　　　　　　b)　Cross-Validation
　　　　c)　Decision Trees　　　　　　d)　Ensemble Methods

8) Which of the following is a type of ensemble method?
   a) K-Nearest Neighbors
   b) Random Forests
   c) Support Vector Machines
   d) Linear Regression

9) What is the purpose of outlier analysis in data mining?
   a) To find the average value in a dataset.
   b) To identify data points that differ significantly from the rest.
   c) To confirm data accuracy.
   d) To increase the size of the dataset.

10) What is a common application of data mining in telecommunication?
   a) Spam detection   b) Market basket analysis
   b) Predictive maintenance   d) Customer churn prediction

B) Fill in the blank.   **06**
   1) In the_____ clustering method are data points are grouped into a predefined number of clusters.
   2) The method is often used in classification to manage probabilities of class membership.
   3) _____ metric is used to evaluate the performance of regression models?
   4) _____ is an information processing paradigm inspired by the human nervous system.
   5) The snowflakes scheme consists of____fact tables.
   6) Clustering is the_____ type of learning.

Q.2 Solve the following. (Any Eight)   **16**
   a) What is a data warehouse?
   b) Why there is a need for preprocessing in data mining?
   c) What are the issues in data mining?
   d) What is ETL?
   e) Define:
        i)   Support.
        ii)   Confidence.
   f) Why is there a need for market basket analysis?
   g) What is the difference between OLAP and OLTP?
   h) Why FP-Growth algorithm requires fewer scans than the Apriori algorithm?
   i) Define:
        i)   Item.
        ii)   Frequent Itemset.
   j) What are the types of binning methods?

Q.3 A) Attempt the following. (Any Two)   **10**
   1) What are the types of OLAP operations?
   2) Explain PAM algorithm with an example.
   3) Explain Naive Bayes Classifier in detail.

B) Explain the K-Means algorithm with an example. **06**

Q.4 A) Attempt the following. (Any Two) **08**
1) What is a data warehouse? Explain data warehouse architecture in detail.
2) What are the applications of data mining?
3) What is the difference between ROLAP data and MOLAP?

B) Explain the Apriori algorithm with an example. **08**

Q.5 Answer the following (Any two) **16**
a) What are the steps in data cleaning? Explain in detail.
b) Explain Rule base classification with an example.
c) What is a cluster? Explain the types of clusters with examples.

Seat No.

B.C.A. (Semester - VI) (New/Old) (CBCS) Examination: October/November – 2025
Cryptography and Network Security (19409605)

Day & Date: Saturday, 01-11-2025   Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
              2) Draw neat labelled diagrams wherever necessary
              3) Figures to right indicate full marks.

Q.1 **A)** **Choose correct alternative from the following:**   **10**
    1) International Data Encryption Algorithm (IDEA) was developed by
       a) Xuejia Lai and James Massey
       b) Xuejia Lai and Bruce Schneier
       c) Xuejia Lai and Carlisle Adams
       d) Xuejia Lai and Stafford Tavares

    2) What is the maximum size of the key in blowfish algorithm?
       a) 256 bits   b) 512 bits
       c) 56 bytes   d) 48 bytes

    3) The shift cipher is sometimes referred to as the
       a) Caesar cipher   b) Shift cipher
       c) Cipher   d) None

    4) Which of these is not characteristic of block ciphers?
       a) Variable key length / block size / number of rounds
       b) Mixed operators, data/key dependent rotation
       c) Key independent S-boxes
       d) More complex key scheduling

    5) Which one of the following is a cryptographic protocol used to secure HTTP connection?
       a) stream control transmission protocol (SCTP)
       b) transport layer security (TSL)
       c) explicit congestion notification (ECN)
       d) resource reservation protocol.

    6) RSA stands for ____.
       a) Rivest, Shamir, Adleman
       b) Roger, Shamir, Adrian
       c) Robert, Shamir, Anthoney
       d) Rivest, Shaw, Adleman

7) ECB and CBC are ciphers
   a) block
   b) stream
   c) Field
   d) none of the above

8) Attack in which a user creates a packet that appears to be something else.
   a) Smurfing
   b) Trojan
   c) E-mail bombing
   d) Spoofing

9) Triple-DES has _____keys.
   a) 1
   b) 2
   c) 5
   d) 4

10) The combination of key exchange, hash, and encryption algorithms defines a_____ for each SSL Session.
    a) list of protocols
    b) cipher suite
    b) list of keys
    d) none of the above

B) Fill in the blank. 06
1) In monoalphabetic substitution, the relationship between a symbol in the plaintext to a symbol in the ciphertext is always_____.
2) A hash function must meet_____ criteria.
3) _____ means to prove the identify of the entity that tries to access the system's resources.
4) The Caesar cipher is a _____ cipher that has a key of 3.
5) One commonly used public-key cryptography method is the_____ algorithm.
6) The process of transforming plain text to unreadable text _____.

Q.2 Solve the following. (Any Eight) 16
a) What is Kerberos? What are the uses?
b) What do you mean by cryptosystem?
c) What is mean by Data Integrity?
d) Define Encryption.
e) Define Cryptography.
f) List three polyalphabetic ciphers.
g) What is mean by DES Function?
h) What is mean by Protection?
i) What is the use of Smart card?
j) What is mean by password?

Q.3 A) Attempt the following. (Any Two) 10
a) Explain the Process and Services of the Digital Signature.
b) Explain the Asymmetric Key Cryptography.
c) Explain RSA Cryptosystem

B) Write a Short note on Model of Network Security. 06

Q.4 **A)** **Attempt the following. (Any Two)** **08**
   a) Explain services provided by IPSec.
   b) Write the use of Block Ciphers.
   c) Explain the security Goals in detail.

B) Explain the security services and mechanisms in detail. **08**

Q.5 **Answer the following (Any two)**
   a) Explain the PGP and S/MIME in detail.
   b) What is mean by SSL? Explain SSL Architecture in network security.
   c) What is meant by Digital Signature? Explain Attacks on Digital Signature.

Seat No.		Set	P

B.C.A. (Semester - VI) (New/Old) (CBCS) Examination: October/November – 2025
Advanced Python (19409606)

Day & Date: Monday, 03-11-2025   Max. Marks: 80
Time: 03:00 PM To 06:00 PM

Instructions: 1) All questions are compulsory.
         2) Draw neat, labeled diagrams wherever necessary.
         3) Figures to right indicate full marks.
         4) Use of log tables and calculators is allowed.

Q.1 A) Multiple choice questions.   **10**

1) Which layout manager organizes widgets in rows and columns?
   a) Pack()   b) grid()
   c) place()   d) fit()

2) What is the default database system used by Django?
   a) MongoDB   b) PostgreSQL
   c) SQLite   d) MySQL

3) What is an XML parser?
   a) A tool to format XML
   b) A tool to read and process XML documents
   c) A tool to convert XML to CSS
   d) A debugging tool

4) In Django, where would you define your database schema?
   a) Views   b) Templates
   c) Models   d) Admin

5) DOM represents the XML document as a _____.
   a) List   b) Text
   c) Tree structure   d) Stack

6) Which of the following is used to group multiple widgets together?
   a) Label   b) Entry
   c) Button   d) Frame

7) Which protocol ensures reliable communication?
   a) TCP   b) UDP
   c) FTP   d) HTTP

8) Which command is used to start a new Django project?
   a) django startproject   b) django createproject
   c) django-admin startproject   d) django-admin newproject

9) Which module is used for socket programming in Python?
  a) urllib   b) http
  c) socket   d) connect

10) The widget used to draw shapes like lines and ovals is:
  a) Canvas   b) Frame
  c) Menu   d) Label

B) Fill in the blank   **06**
  1) The_____ command starts the built-in development server in Django.
  2) _____method keeps the GUI window open until the user closes it.
  3) The_____ file in a Django project contains settings like installed apps and middleware.
  4) SAX Stands for _____
  5) _____ widget is used to accept a single line of text from the user.
  6) A URL stands for _____

Q.2 Solve the following. (Any Eight)   **16**
  a) What is GUI in Python?
  b) Explain the difference between a Django app and a project.
  c) Differentiate between Check button and Radio button.
  d) Mention two advantages of using Django.
  e) What is the difference between SAX and DOM?
  f) What is root window in Tkinter?
  g) What is the use of templates in Django?
  h) What is the role of the listen() method in a server socket?
  i) How do you change the background color of a widget?
  j) What is the role of migrations in Django?

Q.3 A) Attempt the following. (Any Two)   **10**
  1) How do you use Django's admin panel to manage data?
  2) List any four common socket methods and their use.
  3) Explain any two layout managers in Tkinter with example.

  B) Describe the project structure of a Django.   **06**

Q.4 A) Attempt the following. (Any Two)   **08**
  1) What is event binding? Write an example.
  2) Write the steps to create a simple TCP client in Python.
  3) What is the purpose of Django's urls.py file? How does it work?

  B) What is a Web Framework? Explain Django's MVT Design Pattern. **08**

Q.5 **Answer the following. (Any Two)** **16**

   a) Explain the following widgets with example.
- i) Label
- ii) Button
- iii) Entry
- iv) List box

   b) Describe the process of XML parsing using the DOM API. Provide a Python example.

   c) Create a GUI form in Tkinter that takes Name. Gender (Radio Button), and Hobbies (Checkbuttons), and displays the data when Submit is clicked.

Seat No.

B.C.A. (Semester - I) (CBCS) Examination:
October/November - 2025
Fundamentals of Computer Paper – I (BCA1102)

Day & Date: Monday, 24-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagrams and give equations wherever necessary.

Q.1 Choose the correct alternatives.   **08**

1) _____ is the volatile memory of computer.
   a) RAM   b) ROM
   c) Both A and B   d) None of The Above

2) UNIV AC is _____.
   a) Universal Automatic Computer
   b) Universal Array Computer
   c) Unique Automatic Computer
   d) Unvalued Automatic Computer

3) The speed of dot matrix printer is measured in _____.
   a) Dpi   b) CPS
   c) ppm   d) None of the above

4) The bar at the bottom of a window that holds no. of applications is known as?
   a) title bar   b) status bar
   c) menu bar   d) task bar

5) Plotter is _____ type of device.
   a) input   b) scanning
   c) pointing   d) output

6) Computer is free from tiresome we call it _____.
   a) Accuracy   b) Reliability
   c) Diligence   d) Versatility

7) 1Mb is equal to _____.
   a) 1024 bytes   b) 1024 Kb
   c) 1024 Mb   d) 1024 Tb

8) Language Translator is _____ software.
   a) Application   b) System
   c) Operating   d) None of these

Q.2 Answer the following question: (Any Four)   **08**
   a) What is computer?
   b) Define Application Software?
   c) Define hardware?
   d) List out all input devices.
   e) What is an Electronic mail?
   f) Define output Device?

Q.3 Write short notes on the following: (Any Two)   **08**
   a) Joystick.
   b) Primary memory.
   c) Algorithm.

Q.4 Answer the following question: (Any Two)   **08**
   a) What is computer languages and its types?
   b) Explain different applications of computer.
   c) What is flowchart and explain its different type of symbols.

Q.5 Answer the following question: (Any One)   **08**
   a) What is computer network and explain its types?
   b) Explain mouse and its types.

Seat No.

B.C.A. (Semester - I) (CBCS) Examination: October/November - 2025
Web Programming - I (Paper-II) (BCA1105)

Day & Date: Monday, 24-11-2025　　　　　　　　　Max. Marks: 40
Time: 03:00 PM To 05:00 PM

Instructions: 1) All questions are compulsory.
　　　　　　　　2) Draw neat diagrams and give equations wherever necessary.
　　　　　　　　3) Figures to the right indicate full marks.

Q.1　Choose correct alternatives.　　　　　　　　　　　　　　　08

　1) The main purpose of HTML is to: _____
　　a) Design web pages　　　　　b) Style web pages
　　c) Add interactivity　　　　　d) Store data

　2) The <title> tag is placed inside: ____.
　　a) <body>　　　　　　　　　b) <head>
　　c) <html>　　　　　　　　　d) <footer>

　3) Singular tags are also called ____.
　　a) Closed tags　　　　　　　b) Empty tags
　　c) Paired tags　　　　　　　d) End tags

　4) The <img> tag is used to: ____.
　　a) Insert video　　　　　　　b) Create hyperlink
　　c) Insert image　　　　　　　d) Create form

　5) HTML5 was introduced in: ____.
　　a) 2005　　　　　　　　　　b) 2008
　　c) 2010　　　　　　　　　　d) 2014

　6) The three types of CSS are: ____.
　　a) Internal, Inline, External　　b) Global, Local, Remote
　　c) HTML, JS, PHP　　　　　　d) None of these

　7) The text-align property aligns text: ____.
　　a) Left, right, center　　　　b) Up, down
　　c) Bold, italic　　　　　　　d) None

　8) CSS can interact with JavaScript using: ____.
　　a) DOM　　　　　　　　　　b) SQL
　　c) PHP　　　　　　　　　　d) XML

Q.2 Answer any four of the following.   **08**
    a) What is CSS? List types of CSS.
    b) What is use of frame and frameset tag?
    c) Write a note on Media tag.
    d) Write a list of CSS Properties.
    e) Write a note on ordered list.
    f) Write a note on hyperlink.

Q.3 Write short notes on any two of the following.   **08**
    a) What is an Event? Explain with example.
    b) Write a short note on image maps and their attributes.
    c) What are selectors in CSS? Explain with examples of element, class, and ID selectors.

Q.4 Answer any two of the following.   **08**
    a) Differentiate between singular and paired tags with suitable examples.
    b) Explain CSS Properties details.
    c) Explain the structure of HTML program. Write example with 4 different tags.

Q.5 Answer any one of the following   **08**
    a) What is formfield? Explain all formfields with example.
    b) Explain Table tag in detail. Create an HTML table showing the marks of five subjects.

Seat No.	

B.C.A. (Semester - I) (CBCS) Examination: October/November – 2025
Fundamentals of Electronics Paper – I (BCA1108)

Day & Date: Tuesday, 25-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Draw neat diagrams and give equations wherever necessary.
3) Figures to the right indicate full marks.
4) Use of logarithmic table and calculator is allowed.

Q.1   Multiple choice question.   **08**

1) The insulator layer of IC is at _____.
   a) Top   b) Bottom
   c) substrate   d) none of these

2) LED uses _____ material.
   a) PN   b) PP
   c) NN   d) NPN

3) Anode of diode has _____ polarity.
   a) positive   b) negative
   c) Vcc   d) GND

4) LCD is _____ device.
   a) input   b) output
   c) I/O   d) none of these

5) Substrate uses _____ material.
   a) P   b) SiO3
   c) SiO2   d) N

6) Diode is constructed using material _____.
   a) NPN   b) P NP
   c) PN   d) none of these

7) Seven segment display is _____ device.
   a) Input   b) Output
   c) storage   d) none

8) LED is used as _____.
   a) Output   b) input
   c) storage   d) MEM

Q.2 Answer the following. (Any Four)   08
   a) Define Analog IC.
   b) Write application of LCD display devices.
   c) Explain concept of SMT.
   d) Define monolithic IC.
   e) Write advantages of multilayer PCB.
   f) Define Subtrate of IC.

Q.3 Write short notes. (Any Two)   08
   a) Explain Formation of substrate in IC.
   b) Explain Etching process in IC.
   c) Explain single layer PCB.

Q.4 Answer the following. (Any Two)   08
   a) Explain epitaxial growth in IC.
   b) Explain construction and working of photolithiography in IC.
   c) Explain surface mount devices.

Q.5 Answer the following. (Any One)   08
   a) Explain fabrication process of component Diode and capacitor.
   b) Explain construction and working od LCD and Seven segment display.

Seat No.	

B.C.A. (Semester - I) (CBCS) Examination: October/November – 2025
Linear Electronics – II (BCA1109)

Day & Date: Wednesday, 26-11-2025   Max. Marks: 40
Time: 12:00 PM To 02:00 PM

Instructions: 1) All questions are compulsory.
               2) Draw neat labeled diagrams wherever necessary.
               3) Figures to right indicate full marks.
               4) Use of log table and calculators is allowed.

Q.1 Multiple Choice Questions.   **08**

1) Which of the following is tri valent impurity?
     a) Phosphorus   b) Antimony
     c) Aluminium   d) Arsenic

2) The forbidden energy gap between valence band and conduction band is the least in _____.
     a) Metals   b) semiconductors
     c) insulators   d) None of these

3) When a PN junction diode is forward biased _____.
     a) Holes and electrons move away from junction
     b) Depletion region decreases
     c) minority carriers are not affected
     d) All of above

4) Unit of capacitance is _____.
     a) Ohm   b) Henry
     c) Farad   d) Ampere

5) Rectifier converts _____.
     a) DC to DC   b) AC to DC
     c) DC to AC   d) AC to AC

6) Actual physical size of resistor indicates _____ rating.
     a) Voltage   b) current
     b) Power   d) Resistance

7) _____ is not a physical component of electronic component.?
     a) Capacitor   b) Diode
     b) Temperature   d) Resistor

8) _____ type of semiconductor is used to construct most electronic circuits.
a) Germanium
b) Silicon
b) Selenium
d) Tin

Q.2 Answer the following. (Any Four) **08**
  a) Define Resistance, State its unit.
  b) What are the types of Resistors?
  c) Find value of Resistance having color code Yellow, Violet, Red, Gold.
  d) State equation for capasitance for parallel plate capacitor.
  e) Define Rectifier? What are its types?
  f) List applications of regulated power supply?

Q.3 Answer the following. (Any Two) **08**
  a) Explain working principle of transformer with neat diagram.
  b) Explain the color coding of resistor with examples.
  c) Write a short note on Inductors.

Q.4 Answer the following. (Any Two) **08**
  a) Draw block diagram of DC power supply and explain in detail?
  b) Explain N-Type semiconductor with neat diagram.
  c) State applications of BJT?

Q.5 Answer the following (Any one). **08**
  a) Explain formation of P-N junction diode with its working and state its applications.
  b) Explain with circuit diagram and waveforms halfwave and full wave rectifiers.