

END TERM EXAMINATION

FIRST SEMESTER (BCA) DECEMBER-2024 JANUARY-2025

Paper Code: BCA-101T

Subject: Programming for Problem Solving Using C

Time: 3 Hours

Maximum Marks: 60

Note: Attempt all questions as directed. Internal choice is indicated.

Q1 Attempt **any four** of the following questions: (4x5=20)

- ~~(a)~~ Differentiate built-in functions and user-defined functions
- (b) Give an alternative of multiple **if** statements in C.
- ~~(c)~~ What does conversion specification **%6s** means? Explain with example
- ~~(d)~~ Write a C program to find the area of a triangle using **macros**
- (e) List any four unconditional control statements in C.
- (f) What is a **null** character? What is its use in a string?
- ~~(g)~~ Distinguish between append mode and read mode.
- (h) What is the difference between `#include<abc.c>` and `#include "abc.c"`?

- ~~Q2~~ ~~(a)~~ Give differences between **while** and **do-while** statement. (5)
- ~~(b)~~ Write a C program to multiply m*n matrices and store the results in a third matrix. (5)

OR

- Q3 (a) Write a C program to test whether a given string is a palindrome string. Explain the working of the program. (5)
- (b) Write a program in C to count the number of lines, words, characters in a given text. (5)

- Q4 (a) What is a structure? How is it different from an array? How are they defined and initialized? Explain with examples (5)
- (b) Write a C program by using structures to read the following information of 100 employees. (5)
Employee name, employee number, experience (in years) and salary
The program should print the number and names of all the employees who have 5 years or more experience but salary less than Rs. 10,000.

OR

- ~~Q5~~ ~~(a)~~ Write a recursive function to display the first nth terms of the Fibonacci series.
0 1 1 2 3 5 8 13 (5)
Also write the main program. (5)
- ~~(b)~~ Write a function to add two integers and another function to multiply two integers (5)

- ~~Q6~~ ~~(a)~~ Explain with examples the various file handling functions available in C. (5)
- ~~(b)~~ What is a preprocessor? Explain the various preprocessor directives (5)

OR

- Q7 (a) List any ten file processing functions in C along with the examples (5)
(b) A student master file consists of registration number, name and marks in five subjects. Write a C program which will read the file and print a list of students who have failed in one or more subjects. Assume 40% is the pass mark. (5)
- Q8 (a) Write a program in C to create a file named DEPARTMENT for storing information about employees. The record consists of the name of staff, designation, basic pay and earning. Calculate the earnings as basic + DA where DA is 15% of basic pay. (5)
(b) Declare a pointer to call these functions with two integer arguments. Using the pointer call the function to find sum and product of any two given integers (5)

OR

- ~~Q9~~ (a) What is a union? For what kind of applications are unions useful? Explain with an Example (5)
(b) Write a C program calls a function reverse() which accepts a string and display its reverse. (5)

(Please write your Exam Roll No.)

Exam Roll No.034

END TERM EXAMINATION

FIRST SEMESTER [BCA] DECEMBER 2024

Paper Code: BCA-103T

Subject: Fundamentals of Information

Time: 3 Hours

Maximum Marks: 60

Note: Attempt any five questions. All questions carry equal marks.

Q1 Attempt any four of the following questions:- (4x5=20)

- (i) Explain Network Topology and its types?
- (ii) What is an Instruction Set? Explain the various types of addressing modes.
- (iii) What is DOS? Explain any five DOS commands.
- (iv) What is Programming Language? Explain the Types of Programming Languages.
- (v) Explain flowchart and pseudocode.
- (vi) Explain Web server and Search Engine.
- (vii) Explain flash drive and its features.
- (viii) Explain World Wide Web and Domain Name.

Q2 Attempt following both parts: (2x5=10)

- (a) Draw a block diagram of computer and explain major components of digital computer.
- (b) List all computer generation and its characteristics.

OR

Q3 Attempt following both parts: (2x5=10)

- (a) Define Memory. Explain different types of memory used in computer systems.
- (b) Explain the Input and Output Devices with Example.

Q4 Attempt following both parts: (2x5=10)

- (a) What is Operating System? Explain the Functions of Operating System.
- (b) What is computer software? Discuss the role of Assembler, Compiler and Interpreter.

OR

Q5 Attempt following both parts: (2x5=10)

- (a) Explain System software and Application software with example of each type.
- (b) Define Algorithm with its characteristics. Write an algorithm and flowchart to find the maximum of N numbers.

Q6 Attempt following both parts: (2x5=10)

(a) Explain any two of following:

- (i) ASCII Code
- (ii) EBCDIC Code
- (iii) BCD Code

(b) Perform any two of following:

- (i) $(125.75)_{10} = ()_2$
- (ii) $(54 AA)_{16} = ()_8$
- (iii) $(879)_{10} = ()_{16}$

OR

P.T.O.

- Q7 Attempt following both parts: (2x5=10)
- (a) Explain 1's and 2's complement of a binary number.
- (b) Perform any two of following:
- (i) Subtract 54 from 34 using 2's complement binary subtraction method
 - (ii) Divide 11010 by 101
 - (iii) Multiply 101101 by 110

~~Q8~~ Explain Computer Network and its types (LAN, WAN, MAN) in detail?
Differentiate Internet and Intranet (10)

- Q9 Attempt following both parts: (2x5=10)
- (a) Discuss Client Server Architecture in detail.
- (b) What is Data Transmission? Explain the Types of Data Transmissions?

END TERM EXAMINATION

FIRST SEMESTER (BCA) DECEMBER-2024

Paper Code: BCA-105T

Subject: Web Technologies

Time: 3 Hours

Maximum Marks: 60

Note: Attempt all questions as directed. Internal choice is indicated.

- Q1 Attempt any four of the following questions: (4x5=20)
- (a) Define Anchor tag with an example.
 - (b) Define Ordered list with an example.
 - (c) Give an example of a basic grid structure in Bootstrap.
 - (d) What are Class loaders in Bootstrap?
 - (e) What is JavaScript? Write the advantages of JavaScript.
 - (f) Define Event. How events are handled in JavaScript.
 - (g) Explain about the purpose of DTD.
 - (h) Distinguish between DTD and XSD.
- Q2 (a) Explain the structure of the HTML webpage with an example. (5)
- (b) Define List Tag with an example (5)
- OR**
- Q3 (a) Define Frameset, Frame Tag. Divide the web page into four equal parts each individual part displays different web page. (5)
- (b) Explain the difference between frames and i-frame? What are the benefits of using frame in web pages? (5)
- Q4 (a) Design a HTML form for a student registration with fields like name, age, father's name, address, Contact number, course applied for etc. The form should have two buttons for submission and to reset the value. Also Set the background colour of the form and set its front size 14 Times New Roman (5)
- (b) Define Form tag. Design a Registration page by using all Form controls. (5)
- OR**
- Q5 (a) Define Table tag and their attributes with an example. (5)
- (b) Explain about Cascading Style Sheets with an example. List the types of Style sheets. (5)
- Q6 (a) How arrays are declared in java. Explain the methods for creating an array in java script. Also write any five methods of array object in detail with example (5)
- (b) Discuss the different Built - in objects in java Script by giving a suitable example of each. (5)

OR

- Q7 (a) Create an HTML website for entering Pizza Order with customer information and validate some controls using Java Script and also suit CSS. (5)
- (b) Explain various operators and data types available in java script with examples. (5)
- Q8 (a) Explain the procedure for validating the XML Documents. (5)
- (b) Compare HTML and XML. (5)

OR

- Q9 (a) Define XHTML. What are the differences between XHTML and HTML with an example? (5)
- (b) Explain Web Publishing in details. What is its need? Also tell about any Web Publishing Tool? (5)

EXAM Roll no. 0171470 2024

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FIRST SEMESTER [BCA] DECEMBER 2024

Paper Code: BCA-107

Subject: **Mathematical Foundation for
Computer Science**

Time: 3 Hours

Maximum Marks: 60

Note: Attempt all questions as directed. Internal choice is indicated.

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Q1 Attempt Any Four of the following questions.

(4x5=20)

- a) What do you understand by Mode of Binomial Distribution, explain briefly?
 b) Construct the divided difference table form the given values of x and y given below:

X	1	2	4	7	12
Y	22	30	82	106	216

- c) What is the difference between PMF and PDF?
 d) What is the probability of getting a sum 9 from three throws of a dice?
 e) If the mean and variance of a binomial distribution are respectively 9 and 6, find the distribution.
 f) Determine the expectation of the random variable X having the following probability distribution,

X	1	2	3	4
Y	0.15	0.40	0.55	0.20

- g) What is the Lagrange's formula to find y, if three sets of values (x_0, y_0) , (x_1, y_1) and (x_2, y_2) are given?
 h) Define Simpson's 1/3 rule for Integration also write its formula?

- Q2 a) Three persons A, B and C have applied for a job in a private company. The chance of their selections is in the ratio 1 : 2 : 4. The probabilities that A, B and C can introduce changes to improve the profits of the company are 0.8, 0.5 and 0.3, respectively. If the change does not take place, find the probability that it is due to the appointment of C. (5)
 b) The following table represents a probability distribution as follows: (5)

X	0	1	2	3	4
P(X)	k^2	$k^2 + 2k$	$2k^2 + k$	$13k^2 - 2k$	$8k^2 - k$

Find the value of K and list the distribution.

OR

- Q3 a) How do you identify binomial distribution? A fair coin is tossed 10 times, what are the probability of getting exactly 6 heads and at least six heads. (5)
 b) What is the difference between a binomial distribution and normal distribution? (5)
 Q4 a) Define Newton Raphson Method. For the initial value $x_0 = 1$, approximate the root of $f(x) = x^2 - 5x + 1$, using Newton Raphson Method. (5)
 b) What is the difference between forward and backward difference operator? (5)
 When to use forward and backward interpolation? (5)

OR

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- Q5 a) Find the polynomial by using Lagrange's formula and hence find $f(3)$ for (5)

x	0	1	2	3
f(x)	2	3	12	147

- b) Find the approximate value of the root of the equation $3x - \sqrt{1 + \sin x} = 0$ up to 6th iteration. (5)

- Q6 Solve the following system of equations using Gauss elimination method. (10)

$$\begin{aligned} 2x + y + 4z &= 12 \\ 8x - 3y + 2z &= 23 \\ 4x + 11y - z &= 33 \end{aligned}$$

OR

- Q7 Solve the following system of equations using Gauss elimination method. (10)

$$\begin{aligned} x + 2y + 3z &= 14 \\ 2x + 5y + 2z &= 18 \\ 3x + y + 5z &= 20 \end{aligned}$$

- Q8 a) Define Numerical Differentiation. Where is the numerical differentiation used? (5)

- b) Find Solution using Trapezoidal rule (5)

x	2	3	4	5	6	7	8	9	10
f(x)	0.333	0.25	0.20	0.166	0.143	0.125	0.111	0.10	0.091

OR

- Q9 The velocity V of a particle at a distance S from a point on its path is given by

S(m)	0	10	20	30	40	50	60
V(m / s)	47	58	64	65	61	52	38

Estimate the time taken to travel 60m using Simpson's 1/3 rule.

(10)

P-2/2

P-1/2

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FIRST SEMESTER [BCA] DECEMBER 2024

Paper Code: BCA-141T

Subject: Writing Skills

Time: 3 Hours

Maximum Marks: 60

Note: Attempt all questions as directed. Internal choice is indicated.

Q1 Attempt **Any Four** of the following questions:

(4x5=20)

- Define Technical Writing and state its features.
- State the difference between long and short reports.
- Memo vs Letter
- What is a covering letter? Sketch a sample for covering letter.
- What is a proposal? Explain its features.
- Explain the elements of a dissertation.
- Define Kinesics.
- Explain kinds of sentences with their examples.

Q2 State the differences between technical and general writing in detail. Also explain the principles of technical writing. (10)

OR

Q3 Explain the below:

(10)

- Adverbs and its kinds
- Conjunctions and its kinds

Q4 Write a letter of complain for the defective washing machine you recently purchased from Balaji Stores, Delhi. Also write a letter of apology for the same. (10)

OR

Q5 What is a report? Explain the elements of a formal report. (10)

Q6 What is thesis? Write in detail the Features of thesis. (10)

OR

Q7 What is a dissertation? Explain its features and elements. (10)

Q8 Write a resume for the post of Software Developer with an experience of 5 years. (10)

OR

Q9 Explain the difference between a resume and a Curriculum Vitae. State the Do's and Don'ts while writing a resume. (10)

P-1/1