



# PRAHLADRAI DALMIA LIONS COLLEGE OF COMMERCE & ECONOMICS

ISO 9001: 2015 Certified

## **NOTICE**

Date: 9/4/2022

### **B.Sc. (Information Technology)**

**ATKT Internal/Practical Examination April 2022  
Semester I**

#### **INSTRUCTIONS FOR THE STUDENTS HAVING ATKT IN INTERNALS / PRACTICALS**

1. **Date of Submission of the Projects- 20th April, 2022 at 11am in Classroom FT2 (Fourth Floor).**
2. Project/ assignment has to be handwritten on A4 size paper or Foolscap paper. On top of every page a student should write his name, Seat No. and Subject.
3. Students are expected to write the question followed by the answer.
4. On the date of submission there will be viva voce on the given questions. .If the student does not submit his/her assignment/project or does not give his viva voce then he will be declared as **ABSENT**.
5. Any submission after the above mentioned date and time will not be accepted and entertained under any circumstance.
6. On the date of viva voce the dress code will be formal
7. Those students who had FILLED THE FORM & PAID THE FEES and still have NOT been allocated questions in the following list, please send a mail along with attachment of fee receipt to [bscit@dalmialionscollege.ac.in](mailto:bscit@dalmialionscollege.ac.in) on or before 15th April 2022 12.00 noon.

**Prof. Rupali Mishra**  
(Coordinator)

**Prof. Durgesh Kenkre**  
(Exam convener)

**Prof. Subhashini Naikar**  
(Vice- Principal, SFC)

**Dr. Kiran Mane**  
(I/c Principal)

DI/R-IPS/EXAM/00

## Semester I (Internal Exam)

### Subject : Imperative Programming

Roll No	Name of the Student
105	SHARMA ROSHNI RAMNIWAS a. Explain the different types of programming language. b. Explain the different steps in the program development cycle. c. Draw the flowchart and pseudo code of program that doubles a number. d. Describe the structure of a C program. e. What are the various data types in C? Explain them.
150	JENCY ANTHONY SWAMY a. Write a program in C to swap two numbers without using third variable. b. Describe the five arithmetic operators in C. c. Explain the conditional operator in C. d. Explain the getchar and putchar functions used in C programming language. e. Write a short note on scanf function.
167	YADAV SANDEEP JAYPRAKASH a. Explain the term pointers with an example. b. Write a C program to perform addition of two pointer variable. c. Write a short note on pointer arithmetic. d. Differentiate between structure and union. e. What is an array within the structure and array of structure?
169	ANSARI MAHFOOZ SHAMIM MOHD. a. Write the use of break, continue and goto statements. b. Write a C program to find the sum of natural numbers using recursive function. c. Define looping. Compare different types of looping statements. d. Write a short note on C library functions. e. Write a C program to check whether the entered number is Armstrong or not.

### Subject : Digital Electronics

Roll No	Name of the Student
105	SHARMA ROSHNI RAMNIWAS a. Implement full adder circuit using 8:1 MUX. b. Cascade Demultiplexer. Build 1:8 demux using 1:4 demux chips. c. $Y = A + B + \bar{C}$ . Realize using a multiplexer. d. Draw logic circuit diagram of D flip flop and describe with a truth table the working of it. e. How SR flip-flop can be used to work as T flip-flop? Explain.
149	YADAV SURAJ SABHAJEET

	<p>a. Convert the following.</p> <p>(i) <math>(1051.36)_{10} = (?)_8</math></p> <p>(ii) <math>(F9A.D5)_{16} = (?)_{10}</math></p> <p>b. What is Hamming code? A seven bit even parity hamming code is received as 1110101. What is the correct code?</p> <p>c. Certain number system has base 7. What is the hexadecimal equivalent of the minimum and maximum number that is expressed using the base 7 and four bits?</p> <p>d. Solve the following.</p> <p>(i) <math>(111000.01)_2 - (100111.00)_2</math></p> <p>(ii) <math>(1010101)_2 + (11)_2</math></p> <p>e. Perform the following.</p> <p>(i) <math>(727)_8 + (234)_8</math></p> <p>(ii) <math>(2C48)_{16} - (9AA)_{16}</math> using 1C method</p> <p>f. Solve the following.</p> <p>(i) Convert the following number to BCD and add them <math>(11)_{10} + (9)_{10}</math></p> <p>(ii) Convert the following number to XS-3 and subtract them <math>(53)_{10} - (28)_{10}</math></p>
155	<p>VANJARE AAKANKSHA ANIL</p> <p>a. Design modulo 6 ripple counter.</p> <p>b. Design 4 bit binary up/down counter with control input of up/down.</p> <p>c. Implement synchronous counter using JK FF for state diagram shown in figure.</p> <div data-bbox="702 851 1053 1041" data-label="Diagram"> <pre> graph LR     0((0)) --&gt; 3((3))     3 --&gt; 2((2))     2 --&gt; 1((1))     1 --&gt; 3   </pre> </div> <p>d. Write a short note on buffer register.</p> <p>e. Explain working of SIPO register.</p>

**Subject : Operating Systems**

Roll No	Name of the Student
105	<p>SHARMA ROSHNI RAMNIWAS</p> <p>a. What is Operating System? Explain the role of operating system as extended machine.</p> <p>b. Write a short note on Fifth Generation of Operating System.</p> <p>c. Explain multithreaded and multi-core chips.</p> <p>d. Using suitable diagram explain the structure of disk drive.</p> <p>e. Write a short note on Process Model.</p>
118	<p>KOKARE TANMAY VIJAY</p> <p>a. Explain the concept of running multiple programs without memory abstraction.</p> <p>b. How swapping helps to hold large programs in RAM? Explain Using suitable diagram.</p> <p>c. Explain Clock page replacement algorithm using suitable example.</p> <p>d. List and explain any five operations performed on Files.</p> <p>e. Explain the Unix V 7 File system.</p>
149	YADAV SURAJ SABHAJEET

	<p>a. What are block devices and character devices? Explain.</p> <p>b. Write a short note on Memory Mapped IO.</p> <p>c. Explain Direct Memory Access using suitable diagram.</p> <p>d. Explain preemptable and non-preemptable resources.</p> <p>e. List Coffman's four conditions that must hold for a resource to be in deadlock.</p>
155	<p>VANJARE AAKANKSHA ANIL</p> <p>a. Explain the kernel structure of Linux.</p> <p>b. List and explain any five file-system related system calls in Linux.</p> <p>c. Using suitable diagram explain the architecture of Android Operating System.</p> <p>d. Explain the programming layers in modern windows operating System.</p> <p>e. Explain the booting process of windows OS.</p>
167	<p>YADAV SANDEEP JAYPRAKASH</p> <p>a. What is an Operating system? Explain its functions.</p> <p>b. List and explain the system calls for file management.</p> <p>c. With suitable diagram explain the structure of disk drive.</p> <p>d. List various states of processes. Explain with neat diagram.</p> <p>e. What is race condition? How mutual exclusion handles race condition?</p>

**Subject : Discrete Mathematics**

Roll No	Name of the Student
105	<p>SHARMA ROSHNI RAMNIWAS</p> <p>a. A relation <math>R</math> from <math>\mathbf{R}</math> to <math>\mathbf{R}</math> as follows: For all <math>(x, y) \in \mathbf{R} \times \mathbf{R}</math>,  <math>x R y \Leftrightarrow y = 2 x </math>.            Draw the graphs of <math>R</math> and <math>R^{-1}</math> in the Cartesian plane. Is <math>R^{-1}</math> a function?</p> <p>b. A relation <math>T</math> on <math>\mathbf{Z}</math> (the set of all integers) is defined as follows: For all integers <math>m</math> and <math>n</math>,  <math>m T n \Leftrightarrow 3 \mid (m - n)</math>.            Is <math>T</math> reflexive? Is <math>T</math> symmetric? Is <math>T</math> transitive? Prove.</p> <p>c. If <math>A</math> is a set, <math>R</math> is an equivalence relation on <math>A</math>, and <math>a</math> and <math>b</math> are elements of <math>A</math>, then either <math>[a] \cap [b] = \emptyset</math> or <math>[a] = [b]</math>.</p> <p>d. State and prove the handshake theorem.</p> <p>e. Show that the graph below does not have an Euler circuit.</p>
149	YADAV SURAJ SABHAJEET

	<p>a. Prove that <math>n! + 2</math> is divisible by 2, for all integers <math>n \geq 2</math>.</p> <p>b. Prove that <math>7^n - 1</math> is divisible by 6, for each integer <math>n \geq 0</math>.</p> <p>c. Let <math>A = \{0, 1, 2, 3, 4\}</math>, and define functions <math>f : A \rightarrow A</math> and <math>g : A \rightarrow A</math> as follows: For each <math>x \in A</math>, <math>f(x) = (x + 4)^2 \pmod{5}</math> and <math>g(x) = (x^2 + 3x + 1) \pmod{5}</math>. Is <math>f = g</math>? Explain.</p> <p>d. Define <math>g : \mathbb{Z} \rightarrow \mathbb{Z}</math> by the rule <math>g(n) = 4n - 5</math>, for all integers <math>n</math>.</p> <p style="margin-left: 40px;">i. Is <math>g</math> one-to-one? Prove or give a counterexample. ii. Is <math>g</math> onto? Prove or give a counterexample.</p> <p>e. Explain</p> <p style="margin-left: 40px;">i. One-one function ii. Onto function iii. Inverse of a function iv. Cardinality v. Composite function</p>
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**Subject : Communication Skills**

Roll No	Name of the Student
105	<p>SHARMA ROSHNI RAMNIWAS</p> <p>Write short note on :</p> <p>(i) Radio as a Mode of Communication.  (ii) Maps and Charts as a Medium of Non Verbal Communication.  (iii) The Features of Effective Communication  (iv) Significance of Communication in an Organisation  (v) Criteria in choosing the Methods of Communication.</p>
149	<p>YADAV SURAJ SABHAJEET</p> <p>Write short notes on any <b>one</b> of the following :—</p> <p>(i) Clarity in Effective Communication  (ii) Courtesy in Effective Communication</p> <p>Distinguish between oral and written communication.</p> <p>What are effective strategies of effective communication ?</p>

**Subject : Imperative Programming (Practical)**

**Note : Write the answer with Aim, Code, and Output screenshot.**

ROLL NO	NAME OF STUDENT
111	DWIVEDI RAVI MAHAVIR 1. Write a program to find the factorial of a number using recursive function. 2. Write a program to find the largest value that is stored in the array.
112	GUPTA SATYAM KUMAR 1. Write a program to demonstrate the use of pointers. 2. Write a program to perform addition and subtraction of two pointer variables.
115	KADAM SHWETA NITIN 1. Write a program to find whether a given number is palindrome or not. 2. Write a program to reverse the digits of an integer.
118	KOKARE TANMAY VIJAY 1. Write a program to check whether the number is even or odd. 2. Write a program to find the volume of a cube, sphere, and cylinder.
141	SHAH SWATI RAVINDRA 1. Write a program to find the addition, subtraction, multiplication and division of two numbers. 2. Write a program to display the message HELLO WORLD.
143	SHARMA CHIRAG SUNIL 1. Write a program to declare some variables of type int, float and double. Assign some values to these variables and display these values. 2. Write a program to find the addition, subtraction, multiplication and division of two numbers.
148	SINGH ASHWINI HARENDRA 1. Write a program to swap two numbers without using third variable. 2. Write a program to find the area of rectangle, square and circle.
149	YADAV SURAJ SABHAJEET 1. Write a program to enter a number from the user and display the month name. If number >13 then display invalid input using switch case. 2. Write a program to find the factorial of a number.
150	JENCY ANTHONY SWAMY 1. Write a program to check whether the entered number is prime or not. 2. Write a program to find the largest of three numbers.
152	TIWARI SHREERAM SANJAY 1. Write a program to reverse the digits of an integer. 2. Write a programs to print the Fibonacci series.
168	YADAV YOGITA RAMVISHNU 1. Write a program to find the reverse of a number. 2. Write a program to check whether the entered number is Armstrong or not.
169	PAL RAHUL AWADHNARAYAN 1. Write a program to count the digit in a number 2. Write a program to find the factorial of a number using recursive function.
170	PAL SATISH DINESH 1. Write a program to demonstrate the use of pointers.

	2. Write a program to perform addition and subtraction of two pointer variables.
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**Subject : Operating Systems (Practical)**

**Note : Write the answer with Aim, Code, and Output screenshot.**

ROLL NO	NAME OF STUDENT
104	BELEL PRATHAM SAMEER 1. Installation of virtual machine software. 2. Working with Notepad
108	CHAVAN HARSHAL VASANT 1. Windows (DOS) Commands – Diskcomp, diskcopy, diskpart, doskey, echo 2. Working with Paint
111	DWIVEDI RAVI MAHAVIR 1. Windows (DOS) Commands – Edit, fc, find, rename, set, type, ver 2. Installation of Linux operating system (RedHat / Ubuntu) on virtual machine.
112	GUPTA SATYAM KUMAR 1. Installation of Windows operating system on virtual machine. 2. Working with Wordpad
118	KOKARE TANMAY VIJAY 1. Installation of Linux operating system (RedHat / Ubuntu) on virtual machine. 2. Windows (DOS) Commands – Date, time, prompt, md, cd, rd, path.
148	SINGH ASHWINI HARENDRA 1. Windows (DOS) Commands – Date, time, prompt, md, cd, rd, path. 2. Working with Paint
149	YADAV SURAJ SABHAJEET 1. Installation of Windows operating system on virtual machine. 2. Windows (DOS) Commands – Chkdsk, copy, xcopy, format, fidsk, cls, defrag, del, move.
169	PAL RAHUL AWADHNARAYAN 1. Installation of virtual machine software. 2. Using the browsers
170	PAL SATISH DINESH 1. Various options in Taskbar 2. Windows (DOS) Commands – xcopy, format, fidsk, cls, defrag, del, move.

**Subject : Digital Electronics (Practical)**

**Note : Write the answer with Aim, Code, and Output screenshot.**

ROLL NO	NAME OF STUDENT
108	CHAVAN HARSHAL VASANT 1. Study of AND, OR, NOT, XOR, XNOR, NAND and NOR gates

	2. Implement the given Boolean expressions using minimum number of gates - Verifying De Morgan's laws.
111	DWIVEDI RAVI MAHAVIR 1. Implement the given Boolean expressions using minimum number of gates - Implement other given expressions using minimum number of gates. 2. Implement other given expressions using minimum number of ICs.
112	GUPTA SATYAM KUMAR 1. Design and implement Binary – to – Gray code converter. 2. Design and implement a 2-bit by 2-bit multiplier.
118	KOKARE TANMAY VIJAY 1. Design and implement 4:1 multiplexer. Study of IC 74153, 74157 2. Implement the given expression using IC 74151 8:1 multiplexer.
148	SINGH ASHWINI HARENDRA 1. Design and implement a 2-bit comparator. 2. Design and implement Binary – to – BCD code converter
149	YADAV SURAJ SABHAJEET 1. Implement other given expressions using minimum number of gates. 2. Study of Logic gates and their ICs and universal gates:IC 7400, 7402, 7404, 7408, 7432, 7486, 74266
159	VISHWAKARMA KHUSHBOO MUNNA 1. Implement AND, OR, NOT, XOR, XNOR using NAND gates. 2. Design and implement combinational circuit based on the problem given and 3. minimizing using K-maps. 4.
170	PAL SATISH DINESH 1. Design and implement Binary – to – Gray code converter. 2. Design and implement XS – 3 adder.

**Subject : Discrete Maths (Practical)**

**Note : Write the answer with Aim, Code, and Output screenshot.**

ROLL NO	NAME OF STUDENT
111	DWIVEDI RAVI MAHAVIR Write the programs using SCILAB (Probability Theory) 1. Multiplication theorem for conditional probability 2. Finite probability spaces



112	<p>GUPTA SATYAM KUMAR</p> <p>Write the programs using SCILAB (Counting)</p> <ol style="list-style-type: none"> <li>1. Binomial coefficients</li> <li>2. Combinations</li> </ol>
118	<p>KOKARE TANMAY VIJAY</p> <p>Write the programs using SCILAB (Set Theory)</p> <ol style="list-style-type: none"> <li>1. Power Sets</li> <li>2. Mathematical Induction</li> </ol>
143	<p>SHARMA CHIRAG SUNIL</p> <p>Write the programs using SCILAB (Functions and Algorithms)</p> <ol style="list-style-type: none"> <li>1. Polynomial evaluation</li> <li>2. Greatest Common Divisor</li> </ol>
148	<p>SINGH ASHWINI HARENDRA</p> <p>Write the programs using SCILAB (Graph Theory)</p> <ol style="list-style-type: none"> <li>1. Paths and connectivity</li> <li>2. Minimum spanning tree</li> </ol>
149	<p>YADAV SURAJ SABHAJEET</p> <p>Write the programs using SCILAB</p> <ol style="list-style-type: none"> <li>1. Finite probability spaces</li> <li>2. Repeated trials with two outcomes</li> </ol>
152	<p>TIWARI SHREERAM SANJAY</p> <p>Write the programs using SCILAB</p> <ol style="list-style-type: none"> <li>1. Product rule principle</li> <li>2. Permutations with repetitions</li> </ol>
170	<p>PAL SATISH DINESH</p> <p>Write the programs using SCILAB</p> <ol style="list-style-type: none"> <li>1. Recursively defined functions</li> <li>2. Greatest Common Divisor</li> </ol>

**Subject : Communication Skills (Practical)**

**Note : Write the answer with Aim, Code, and Output screenshot.**

ROLL NO	NAME OF STUDENT
107	<p>CHAURASAIYA ANKUR RAJBAHADUR</p> <p>Project on the topic "E-Waste Management" (Minimum 5 pages)</p>
118	KOKARE TANMAY VIJAY

	Project on the topic "Seven Cs of Effective Communication:" (Minimum 5 pages)
170	PAL SATISH DINESH Project on the topic "Presentation Process" (Minimum 5 pages)