



PRAHLADRAI DALMIA LIONS COLLEGE
OF COMMERCE & ECONOMICS
ISO 9001: 2015 Certified

NOTICE

Date: 29/03/2024


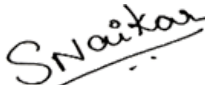

B.Sc. (Information Technology)

**ATKT Internal/Practical Examination April' 2024
Semester I**

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

1. The viva voce will be conducted offline.
2. Date of Submission of the Project 5th April, 2024- at 1.00 P.M. in the computer lab.
3. Students must write their Internal/practical ATKT project in their own handwriting on A4 size foolscap paper. On top of every page a student has to write his/her Complete Name, Program (Dept.), Semester, Roll no., Class and Contact No.
4. Student has to attach a photocopy of questions allotted to him/her along with his answers.
5. Students have to attach an ATKT fee payment receipt along with his/her project.
6. On the date of submission, there will be a viva voce for which the student has to present himself/herself, failing which he/she will be marked absent.
7. Submissions after the above mentioned date and time will not be accepted and entertained under any circumstances.

Note: For any query mail to: bscit@dalmialionscollege.ac.in

			
<u>Ms. Rupali Mishra</u>	<u>CA. Durgesh Kenkre</u>	<u>Ms. Subhashini Naikar</u>	<u>Prof. (Dr.) D. N. Ganjewar</u>
<u>(Coordinator - BSc IT)</u>	<u>Exam Convener</u>	<u>Vice- Principal, SFC</u>	<u>(Principal)</u>

DI/R-IPS/EXAM/00

Semester I (Internal Exam)

Subject : Programming Principles with C

Roll No	Name of the Student
111	<ol style="list-style-type: none">1. Explain the different types of programming languages.2. Explain the different steps in the program development cycle3. Draw the flowchart and pseudocode of program that doubles a number.4. Describe the structure of a C program.
124	<ol style="list-style-type: none">1. Explain the loop with an example.2. Write a short note on Algorithms.3. Define array? What are the different types of array?4. Define Operator. What are the different types of operators? Explain
129	<ol style="list-style-type: none">1. Write history of C programming language..2. Explain the different types of operators in C language.3. Draw the flowchart and pseudocode of a program to find the area and perimeter of a circle..4. What are the different types of loop? Explain.
130	<ol style="list-style-type: none">1. What is C Programming? Explain features of C language2. Write a short note on a flow chart with its symbol.3. Explain nested if with example.4. WAP to print the following pattern.
145	<ol style="list-style-type: none">1. What is Function? Explain built in and user defined functions.2. WAP to find swapping of two numbers.3. Explain while and do while loops.4. Explain Call by value with example.
153	<ol style="list-style-type: none">1. WAP to find odd or even.2. Explain input and output functions.3. Explain any five MATH functions with examples.4. Write a short note on Union.
160	<ol style="list-style-type: none">1. WAP to add two matches.2. Explain any five String functions with examples.3. Explain structure in C4. Explain pointers with examples.
162	<ol style="list-style-type: none">1. WAP to create 2D arrays.2. Write an algorithm to find the area of a circle and also draw its flow chart.3. Explain Arithmetic operators with examples.4. Write a short note on pseudo code
165	<ol style="list-style-type: none">1. WAP to print the following pattern * ** *** ****2. Define variables? State rules to declare variables.

	<ol style="list-style-type: none"> 3. What is a recursive function? Explain with examples. 4. Write a short note on an array with examples.
170	<ol style="list-style-type: none"> 1. WAP to find the greatest of three numbers. 2. WAP to find simple interest. 3. WAP to find Factorial. 4. Write a short note on Call by value with example.

Subject : Digital Electronics

Roll No	Name of the Student
111	<ol style="list-style-type: none"> 1. State De-Morgan's theorem and mention its use. 2. Express the function $Y = A + BC$ in canonical POS. 3. Convert the given decimal numbers to their binary equivalent 108.364, 268.025. 4. Why totem pole outputs cannot be connected together?
145	<ol style="list-style-type: none"> 1. Convert $(115)_{10}$ and $(235)_{10}$ into hexadecimal numbers. 2. Define 'Minterm' and 'Maxterm'. 3. Draw an active high tri-state Gate & write its truth table. 4. Show how to connect NAND gates to get an AND gate and OR gate?
153	<ol style="list-style-type: none"> 1. Simplify the following Boolean expression into one literal. $W'X(Z'+YZ) + X(W+Y'Z)$. 2. State Distributive law and Duality principle. 3. Convert the given decimal numbers to their binary equivalent 108.364, 268.025. 4. Draw an active high tri-state Gate & write its truth table.
160	<ol style="list-style-type: none"> 1. Short note on different techniques of binary subtractions. 2. What are codes? Difference between weighted and non-weighted codes. Give one example of each. 3. Describe the working of a multiplier. 4. Describe with a truth table the working of Clocked Set – Reset flip flop.
164	<ol style="list-style-type: none"> 1. Write a short note on shift registers 2. Write the difference between analog signal and digital signal 3. State and prove DeMorgan's theorem and realize it using basic gates 4. Describe with a truth table the working of JK flip flop.
166	<ol style="list-style-type: none"> 1. Difference between encoders and decoders 2. Describe with a timing diagram the working of a 4 bit ring counter. 3. Short note on different techniques of binary subtractions 4. What are codes? Difference between weighted and non-weighted codes. Give one example of each.

Subject : FDBMS

Roll No	Name of the Student
117	<ol style="list-style-type: none"> 1. Explain single row function with example of each 2. Write short note on Set operator 3. Write a short note on Views in DBMS. 4. Write short note on Referential integrity
145	<ol style="list-style-type: none"> 1. Write short note on Database keys 2. Write a short note on Integrity rules. 3. Write short note on Aggregating functions 4. Write short note on Functional dependency
153	<ol style="list-style-type: none"> 1. Explain Subqueries with the help of an example 2. Write short note on SQL Alter table statement 3. Write short note on Constraints in MYSQL 4. Write short note on creating and managing tables
160	<ol style="list-style-type: none"> 1. Write a short note on business Rule. 2. Write short note on users in DBMS 3. Explain any 5 single row functions with an example 4. Write short note on PL/SQL Block
162	<ol style="list-style-type: none"> 1. Distinguish between Primary Key and Foreign Key. 2. Explain External, Internal and Conceptual schema in detail. 3. What are the advantages of DBMS over File System. 4. Explain the concept of Nested Query.
169	<ol style="list-style-type: none"> 1. Write a short note on 3NF. 2. Explain the inner join operation. 3. Explain Sum and Average functions in DBMS. 4. Explain ACID properties in detail.
170	<ol style="list-style-type: none"> 1. Explain the concept of Generalization in database modeling. 2. Distinguish between Update and Alter statement. 3. Explain different states a transaction can be in within a DBMS. 4. Write a short note on Timestamp-Based Protocol.

Subject : Computational Logic and Discrete Structure

Roll No	Name of the Student
111	<ol style="list-style-type: none"> a. Write Power set of : a) $A = \{1, 2\}$ b) $B = \{a, b, c\}$ b. Use mathematical Induction to prove that for all integers $n \geq 1$, $1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$ c. If $M = \{1, 2\}$ and $N = \{a, b, c\}$, then find a) $M \times N$ b) $N \times M$

117	<p>a. Explain Injective function and <u>Surjective</u> function with one example for each</p> <p>b. Find the cardinal number of each set:</p> <p>a) $A = \{Mumbai, Delhi, Kolkata, Chennai\}$</p> <p>b) $B = \{x : x \in N, 4 \leq x \leq 8\}$</p> <p>c) $C = \{x : x \text{ is the letter in the word "CRICKET"}\}$</p> <p>d) $D = \{x : x \leq 4, x \geq 8\}$</p> <p>e) $E = \{y : y^2 = 16\}$</p> <p>c. Explain any two characteristics of Algorithms</p>
124	<p>a. The chairs of an auditorium are to be <u>labelled</u> with two characters; a letter (not case sensitive) followed by a digit. What is the largest number of chairs that can be <u>labelled</u> differently?</p> <p>b. Suppose an automobile license plate has three letters (not case sensitive) followed by three digits.</p> <p>a) How many license plates begin with M?</p> <p>b) How many license plates could begin with letter M and end with digit 0?</p> <p>c. There are 21 boys and 19 girls in a class. In how many ways can one boy and one girl be selected to represent the class?</p>
130	<p>a. Define and explain with one example what is <u>Bipartite Graph</u>?</p> <p>b. What is Spanning sub-Graph of a Graph G. Explain with a suitable <u>example</u>.</p> <p>c. Check if the following two Graphs are Isomorphic or not</p> <p>$G_1 = \{(a, b), (a, d), (a, e), (b, c), (c, d), (d, e)\}$</p> <p>$G_2 = \{(v_1, v_2), (v_1, v_3), (v_2, v_3), (v_2, v_5), (v_3, v_4), (v_4, v_5)\}$</p>
138	<p>a. Construct a binary tree for the expression $(a + b)x(d/c)$</p> <p>b. Draw a Spanning tree of the Graph :</p> <p>$A = \{a, b, c, d\}$</p> <p>$R = \{(a, b), (a, d), (b, c), (b, d), (c, d)\}$</p> <p>c. Define a Partially Ordered Set</p>
145	<p>Q1) Define and Explain Transitive Relation Check if given Relation is transitive or not: $A = \{4, 5, 6, 7\}$ and $R = \{(4, 4), (4, 5), (4, 6), (4, 7), (5, 5), (5, 7), (6, 5), (6, 6), (6, 7), (7, 7)\}$</p> <p>Q2) Use mathematical Induction to prove that for all integers $n \geq 1$,</p> $1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$ <p>Q3) If $R = \{p, q, r\}$ and $S = \{1, 2, 3\}$, then find $R \times S$</p>
149	<p>Q1) Use mathematical Induction to prove that for all integers $n \geq 1$,</p> $1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$ <p>Q2) If $R = \{p, q, r\}$ and $S = \{1, 2, 3\}$, then find $R \times S$</p> <p>Q3) Explain with one example each: a) Reflexive Closure b) Symmetric Closure</p>

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156	<p>Q1) Explain with one example each: a) Reflexive Closure b) Symmetric Closure</p> <p>Q2) Given $A = \{1, 2, 3, 4\}$, $B = \{a, b, c, d\}$ and $R = \{(1, c), (2, b), (3, a), (4, d)\}$. Write $Dom(R)$, $Ran(R)$ and R^{-1}</p> <p>Q3) In a class of 40 pupils, 18 watched "Tom & Jerry" last night and 23 watched "<u>Chhota Bhim</u>". 7 watched both cartoons. How many students did not watch either cartoon?</p>
160	<p>a. Construct a binary tree for the expression $(a + b)x(d/c)$</p> <p>b. Draw a Spanning tree of the Graph : $A = \{a, b, c, d\}$ $R = \{(a, b), (a, d), (b, c), (b, d), (c, d)\}$</p> <p>c. Define a Partially Ordered Set</p>
162	<p>Q1) Use mathematical Induction to prove that for all integers $n \geq 1$, $1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$</p> <p>Q2) If $R = \{p, q, r\}$ and $S = \{1, 2, 3\}$, then find $R \times S$</p> <p>Q3) Explain with one example each: a) Reflexive Closure b) Symmetric Closure</p>
164	<p>Q1) Define and Explain Transitive Relation Check if given Relation is transitive or not: $A = \{4, 5, 6, 7\}$ and $R = \{(4, 4), (4, 5), (4, 6), (4, 7), (5, 5), (5, 7), (6, 5), (6, 6), (6, 7), (7, 7)\}$</p> <p>Q2) Use mathematical Induction to prove that for all integers $n \geq 1$, $1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$</p> <p>Q3) If $R = \{p, q, r\}$ and $S = \{1, 2, 3\}$, then find $R \times S$</p>
165	<p>d. There are 350 farmers in a large region. 260 farm beetroot, 100 farm yams, 70 farm radish, 40 farm beetroot and radish, 40 farm yams and radish, and 30 farm beetroot and yams. Let B, Y, and R denote the set of farms that farm beetroot, yams and radish respectively. Determine the number of farmers that farm beetroot, yams, and radish.</p> <p>e. Determine whether the relation $R = \{(a, a), (b, a), (b, b), (c, c), (d, d), (d, c)\}$ defined on $A = \{a, b, c, d\}$ is equivalence relation.</p> <p>f. Prove that using Mathematical Induction $1.2 + 2.3 + 3.4 + \dots + n(n+1) = \frac{n(n+1)(n+2)}{3}$</p>

168	<p>1) There are four bus lines between A and B; and three bus lines between B and C. Find the number of ways a person can travel :</p> <p>a) By bus from A to C by way of B;</p> <p>b) Round trip by bus from A to C by way of B;</p> <p>c) Round trip by bus from A to C by way of B, if the person does not want to use a bus line more than once.</p> <p>2) A) How many ways can five of the letters of the word ALGORITHM be selected and written in a row ? B) How many ways can five of the letters of the word ALGORITHM be selected and written in a row if the first two letters must be TH ?</p> <p>3) An examination paper consists of 5 questions in section A and 5 questions in section B. A total of 8 questions must be answered. In how many ways a student select the questions if he is to answer atleast 4 questions from section A.</p>
170	<p>4) a) If 13 people are assembled in a room, then atleast two of them will have their birthdays in the same month. b) Show that if 7 numbers from 1 to 12 are selected then atleast two of them will add upto 13.</p> <p>5) a) Show that if there are 100 students in a class then atleast there are four of them whose first name begins with the same alphabet. b) What is the minimum number of students required in a Discrete Mathematics class to be sure that atleast six will receive the same grade, if there are five possible grades A,B,C,D & F.</p> <p>6) Solve the recurrence relation $a_n = 6a_{n-1} - 9a_{n-2}$ With the initial conditions are $a_0 = 1$ and $a_1 = 6$</p>

Subject : Technical Communication Skills

Roll No	Name of the Student
117	<ol style="list-style-type: none"> 1. What are the various aspects of corporate communication? 2. Discuss the two types of organizational conflicts with suitable examples. 3. Write a note on basic communication models. 4. Briefly explain any two ethical perspectives. 5. What is AIDA? Explain its term.
127	<ol style="list-style-type: none"> 1. How can a balance be maintained with Completeness and Clarity as the principles for effective communication? 2. Discuss any three barriers that lead to communication breakdown in an organization. 3. Gestures are observed actions' – Elaborate. 4. state the advantages and disadvantages of grapevine communication. 5. Discuss about different communication styles highlighting low and high context cultures.

138	<ol style="list-style-type: none"> 1. Briefly explain the five major stages involved in writing effective business messages. 2. What are the main components of an effective introduction? 3. Which format (chronological/functional/combination) of resume is suitable for a fresh graduate and why? 4. Explain any five variables that create barriers for effective listening. 5. As a General Secretary of the Student's Council of your college, submit the report to the Principal on the necessity of opening a fully equipped gymkhana in your college.
145	<ol style="list-style-type: none"> 1. State the various purposes of team presentations. 2. What is the role of human resource communication in an organization? 3. Explain the difference between meetings and conferences. 4. What are some specific principles for effective writing of minutes? 5. What are the constituents of financial communication?
162	<ol style="list-style-type: none"> 1. Write a short note on Group discussion. 2. Explain the principles of ethical communication. 3. Short note on advantages of online recruitment. 4. Discuss vertical communication.
170	<ol style="list-style-type: none"> 1. Discuss the importance of effective financial communication. 2. Explain the four modes of delivery that can be used for making a presentation. 3. Elaborate the ethical dilemma faced by managers. 4. What is career building? List down its benefits.

Subject : Programming Principles with C (Practical)

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

ROL L NO	NAME OF STUDENT
145	CHAVAN SHREYAS SANJAY <ol style="list-style-type: none"> 1. Write an algorithm and draw flowchart for sum of 1 to 5 numbers 2. Write a program to find the roots of quadratic equation.
170	JAISWAL YASH DINESH <ol style="list-style-type: none"> 1. Write a program to print the Fibonacci series

	2. Write a program to sort the elements of array in ascending or descending order.
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Subject : FDBMS (Practical)

Note : Write the answer with emp table

ROL L NO	NAME OF STUDENT
145	Creating table with constraints: 1. NOTNULL 2. UNIQUE 3. PRIMARY KEY 4. FOREIGN KEY
160	Write queries using Group By, Having clause, Order By clause
170	Write queries with functions : AVG,MIN,MAX,SUM,COUNT

Subject : DLA (Practical)

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

ROL L NO	NAME OF STUDENT
145	1. Implement the given expression using a minimum number of gates. 2. Implement the given expression using a minimum number of ICs.
167	1. Design and implement combinational circuits for the given problem/problems using minimization techniques of K-maps.
170	1. Design the circuit and implement Binary to gray code converter 2. Design the circuit and implement Gray to Binary code converter

Subject : CLDS (Practical)

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

ROLL NO	NAME OF STUDENT
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145	1.	In a college, 120 mathematics students can opt for either French(F), German(G) or Russian(R). Write a code in <u>scilab</u> to find number of mathematics students taking atleast one of the three languages French(F) , German (G) or Russian (R) considering the following data. Use Inclusion Exclusion principle.															
		<table border="1"> <thead> <tr> <th>Language</th> <th>No of students studying</th> </tr> </thead> <tbody> <tr> <td>French</td> <td>65</td> </tr> <tr> <td>German</td> <td>45</td> </tr> <tr> <td>Russian</td> <td>42</td> </tr> <tr> <td>French and German</td> <td>20</td> </tr> <tr> <td>German and Russian</td> <td>15</td> </tr> <tr> <td>Russian and French</td> <td>25</td> </tr> <tr> <td>French and German and Russian</td> <td>8</td> </tr> </tbody> </table>	Language	No of students studying	French	65	German	45	Russian	42	French and German	20	German and Russian	15	Russian and French	25	French and German and Russian
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	2.	Write a code in <u>scilab</u> to represent path matrix.															
166	1.	Write a code in <u>scilab</u> to find cardinality of a set containing 4 and 7 elements.															
	2.	Write a code in <u>scilab</u> for three unbiased coins are tossed. <ul style="list-style-type: none"> a. Probability of getting no head b. Probability of getting only one head c. Probability of getting two head d. Probability of getting all head 															
170	1.	Write a code in <u>scilab</u> to find Number of power set and proper <u>subset of the set contain 6 elements.</u>															
	2.	Write a <u>scilab</u> code to perform the following: <ul style="list-style-type: none"> a. Factorial of 6 b. Value of 8! / 6! c. Value of 12! / 9! 															

Subject : Technical Communication Skills (Practical)

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

ROL L NO	NAME OF STUDENT
145	Project on the topic "E-Waste Management" (Minimum 5 pages)
160	Project on the topic "Seven Cs of Effective Communication:" (Minimum 5 pages)
170	Project on the topic "Exercises on Communication Principles" (Minimum 5 pages)