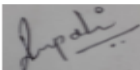## NOTICE

Date: 27/03/2023

B.Sc. (Information Technology)

ATKT Internal/Practical Examination March' 2023
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, 2023- 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

Prof.Rupali Mishra	Prof. Durgesh Kenkre	Prof. Subhashini Naikar	Dr. Kiran Mane
(Coordinator)	(Exam convener)	(Vice- Principal, SFC)	(I/c Principal)

DI/R-IPS/EXAM/00

Semester I (Internal Exam)

Subject : Programming Principles with C

Roll No	Name of the Student
157	1. Explain the different types of programming languages. 2. Explain the different steps in the program development cycle 3. Draw the flowchart and pseudocode of program that doubles a number. 4. Describe the structure of a C program.
166	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
167	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.

Subject : Digital Electronics

Roll No	Name of the Student
102	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?
119	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?
163	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.
166	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.

167	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.
169	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.
171	1. Describe the working of a multiplier. 2. Describe with a truth table the working of Clocked Set – Reset flip flop. 3. Write a short note on shift registers . 4. Difference between encoders and decoders
164	1. Write the difference between analog signal and digital signal 2. State and prove DeMorgan's theorem and realize it using basic gates 3. Define 'Minterm' and ' Maxterm'. 4. Draw an active high tri-state Gate & write its truth table.

Subject : FDBMS

Roll No	Name of the Student
157	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
166	1. Write short note on Database keys 2. Write short note on Integrity rules. 3. Write short note on Aggregating functions 4. Write short note on Functional dependency
167	1. Explain Sub queries 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
164	1. Write 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

Subject : Computational Logic and Discrete Structure

Roll No	Name of the Student

106	a. Write Power set of : a) $A = \{1, 2\}$ b) $B = \{a, b, c\}$ b. Use mathematical Induction to prove that for all integers $n \geq 1$, $$1 + 2 + 3 + \cdots + n = \frac{n(n+1)}{2}$$ c. If $M = \{1, 2\}$ and $N = \{a, b, c\}$, then find a) $M \times N$ b) $N \times M$

107	a. Explain Injective function and Surjective function with one example for each
	
	b. Find the cardinal number of each set:
	     a) $A = \{Mumbai, Delhi, Kolkata, Chennai\}$
	     b) $B = \{x : x \in N, 4 \leq x \leq 8\}$
	     c) $C = \{x : x \text{ is the letter in the word "CRICKET"}\}$
	     d) $D = \{x : x \leq 4, \ x \geq 8\}$
	     e) $E = \{y : y^2 = 16\}$
	
	c. Explain any two characteristics of Algorithms

118	a. The chairs of an auditorium are to be labelled with two characters; a letter (not case sensitive) followed by a digit. What is the largest number of chairs that can be labelled differently?
	
	b. Suppose an automobile license plate has three letters (not case sensitive) followed by three digits.
	     a) How many license plates begin with M?
	     b) How many license plates could begin with letter M and end with digit 0?
	
	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?

119	a. Define and explain with one example what is Bipartite Graph? b. What is Spanning sub-Graph of a Graph G. Explain with a suitable example. c. Check if the following two Graphs are Isomorphic or not $G1 = \{(a, b), (a, d), (a, e), (b, c), (c, d), (d, e)\}$ $G2 = \{(v1, v2), (v1, v3), (v2, v3), (v2, v5), (v3, v4), (v4, v5)\}$
131	a. Construct a binary tree for the expression $(a + b)x(d/c)$ b. Draw a Spanning tree of the Graph : $A = \{a, b, c, d\}$ $R = \{(a, b), (a, d), (b, c), (b, d), (c, d)\}$ c. Define a Partially Ordered Set
138	Q1) Define and Explain Transitive Relation Check if given Relation is transitive or not: $A = \{4, 5, 6, 7\}$ and $R = \{(4, 4), (4, 5), (4, 6), (4, 7), (5, 5), (5, 7), (6, 5), (6, 6), (6, 7), (7, 7)\}$ Q2) Use mathematical Induction to prove that for all integers $n \geq 1$, $$1 + 2 + 3 + \cdots + n = \frac{n(n+1)}{2}$$ Q3) If $R = \{p, q, r\}$ and $S = \{1, 2, 3\}$, then find $R \times S$
148	Q1) Use mathematical Induction to prove that for all integers $n \geq 1$, $$1 + 2 + 3 + \cdots + n = \frac{n(n+1)}{2}$$ Q2) If $R = \{p, q, r\}$ and $S = \{1, 2, 3\}$, then find $R \times S$ Q3) Explain with one example each: a) Reflexive Closure b) Symmetric Closure

160	a. The chairs of an auditorium are to be labelled with two characters; a letter (not case sensitive) followed by a digit. What is the largest number of chairs that can be labelled differently?
	b. Suppose an automobile license plate has three letters (not case sensitive) followed by three digits.
	    a) How many license plates begin with M?
	    b) How many license plates could begin with letter M and end with digit 0?
	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?

166	Q1) Explain with one example each: a) Reflexive Closure b) Symmetric Closure 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} Q3) In a class of 40 pupils, 18 watched "Tom & Jerry" last night and 23 watched "Chhota Bhim". 7 watched both cartoons. How many students did not watch either cartoon?
167	a. Construct a binary tree for the expression $(a+b)x(d/c)$ b. Draw a Spanning tree of the Graph : $A = \{a,b,c,d\}$ $R = \{(a,b),(a,d),(b,c),(b,d),(c,d)\}$ c. Define a Partially Ordered Set
169	Q1) Use mathematical Induction to prove that for all integers $n \geq 1$, $$1+2+3+\cdots+n = \frac{n(n+1)}{2}$$ Q2) If $R = \{p,q,r\}$ and $S = \{1,2,3\}$, then find RxS Q3) Explain with one example each: a) Reflexive Closure b) Symmetric Closure
171	Q1) Define and Explain Transitive Relation Check if given Relation is transitive or not: $A = \{4,5,6,7\}$ and $R = \{(4,4),(4,5),(4,6),(4,7),(5,5),(5,7),(6,5),(6,6),(6,7),(7,7)\}$ Q2) Use mathematical Induction to prove that for all integers $n \geq 1$, $$1+2+3+\cdots+n = \frac{n(n+1)}{2}$$ Q3) If $R = \{p,q,r\}$ and $S = \{1,2,3\}$, then find RxS

Subject : Technical Communication Skills

Roll No	Name of the Student
157	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.
166	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.
167	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.
171	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?

Subject : Programming Principles with C (Practical)
Note : Write the answer with Aim, Code, and Output screenshot.

ROLL NO	NAME OF STUDENT
103	CHAVAN SHREYAS SANJAY 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.
116	JAISWAL YASH DINESH 1. Write a program to print the Fibonacci series 2. **Write a program to sort the elements of array** in ascending or descending order.
117	JHA AAKASH SHARWAN 1. Write a program to print rollno and names of 10 students using array

	2. **Write a program to print Floyd's Triangle.**

131	PANDEY KESHAV VINOD
	
	   1. Write a program to check whether the number is positive, negative or zero.
	   2. Write a program to find the factorial of a number.

135	PRAJAPATI ASHISH BUCHCHAN
	
	   1. Write an algorithm and draw flowchart to compute the addition of digits of a given number.
	   2. Write a program using while loop to reverse the digits of a number.

138	SAROJ PIYUSH RAJKUMAR
	
	   1. **Write a program to sort the elements of array** in ascending or descending order.
	   2. Write a program to find the roots of quadratic equation

152	YADAV ABHISHEK ASHOK
	
	   1. Write an algorithm and draw flowchart to print the given no. is even or odd. c. Write an algorithm and draw flowchart to print 1 to 10 numbers
	   2. Write a program to print the Fibonacci series

156	YADAV SHIVAM SARNATH
	
	   1. Write a program to calculate the factorial of a given number.
	   2. Write an algorithm and draw flowchart for sum of 1 to 5 numbers

157	YADAV SHUBHAM SANJAY KUMAR
	
	   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.

160	MISHRA HIMANSHU VIMAL
	
	   1. Write a program in C to check entered character vowel or consonant
	   2. Write a program to print rollno and names of 10 students using array

161	SHARMA VISHWAS BHARAT
	
	   1. Write a program to print rollno and names of 10 students using array.
	   2. Write a program to print area of square using function.

169	SAYED HAMZA SALIM
	
	   1. Write a program to demonstrate the use of pointers.
	   2. Write a program to perform addition and subtraction of two pointer variables

171	KUSHWAHA SHIVAM SADANAND
	
	   1. Write a program to find the roots of quadratic equation.
	   2. Write a program in C to check entered character vowel or consonant

164	RAJBHAR RITESH VIDYADHAR
	
	   1. Write a program to find the factorial of a number using a recursive function.
	   2. Write a program to find the largest value that is stored in the array.

Subject : FDBMS (Practical)
Note : Write the answer with emp table

ROLL NO	NAME OF STUDENT
155	Draw E-R diagram and convert entities and relationships to relation table for a given scenario a. Bank
156	Draw E-R diagram and convert entities and relationships to relation table for a given scenario a. College
157	Creating table with constraints: 1. NOTNULL 2. UNIQUE 3. PRIMARY KEY 4. ,FOREIGN KEY
161	Write queries using Group By, Having clause, Order By clause
163	Write queries with functions : AVG,MIN,MAX,SUM,COUNT
165	Write queries with functions : ABS,SQRT,ROUND,TRUNCATE,SIGN,POWER,MOD,FLOOR,CEIL
166	Write an example of View for : a. Creating view b. Dropping view c. Selecting from a view
169	Write an example of creating and replacing a trigger
170	Write sant 5 single like sql queries with output
172	Write examples of a. Using INSERT statement b. Using UPDATE statement c. Using DELETE statement
171	Write examples of a. Using DELETE statement, Using ALTER statement
164	Creating table with constraints: 1. CHECK 2. NOTNULL 3. UNIQUE 4. PRIMARY KEY 5. ,FOREIGN KEY

Subject : DLA (Practical)
Note : Write the answer with Aim, Code, and Output screenshot.

ROLL NO	NAME OF STUDENT
103	1. To verify the truth tables of OR, AND, NOR, NAND, EX-OR, EX-NOR gates 2. To study IC 7400, 7402, 7404, 7408, 7432, 7486, 74266
116	1. To study IC 7400, 7402, 7404, 7408, 7432, 7486, 74266 2. To implement and verify NAND and NOR as Universal gates

119	1. To verify De Morgan's laws
	2. Implement the given expression using a minimum number of gates.
138	1. Implement the given expression using a minimum number of gates.
	2. Implement the given expression using a minimum number of ICs.
155	1. Design and implement combinational circuits for the given problem/problems using
	minimization techniques of K-maps.
156	1. Design the circuit and implement Binary to gray code converter
	2. Design the circuit and implement Gray to Binary code converter
157	1. Design the circuit and implement Binary to BCD code converter
	2. Design the circuit and implement Binary to XS-3 code converter
161	1. Design and implement 2-by-2 bit multiplier
169	1. Design and implement 8: 3 encoder
	2. Design and implement 3:8 decoder
171	1. Design and Implement 4:1 multiplexer
	2. Design and Implement 1:4 demultiplexer
164	1. Study IC 74151 8: 1 multiplexer and implement the expression
	2. Study IC 74138 3: 8 decoder and implement the expression

Subject : CLDS (Practical)
Note : Write the answer with Aim, Code, and Output screenshot.

ROLL NO	NAME OF STUDENT
119	1. In a college, 120 mathematics students can opt for either French(F), German(G) or Russian(R). Write a code in scilab to find number of mathematics students taking atleast one of the three languages French(F) , German (G) or Russian (R) considerin the following data. Use Inclusion Exclusion principle. | 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	8 | 2. Write a code in scilab to represent path matrix.

123	1.	Write a code in scilab to find cardinality of a set containing 4 and 7 elements.	

	2.	Write a code in scilab for three unbiased coins are tossed.
		  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	

125	1.	Write a code in scilab to find Number of power set and proper subset of the set contain 6 elements.	

	2.	Write a scilab code to perform the following:
		  a. Factorial of 6
		  b. Value of 8! / 6!
		  c. Value of 12! / 9!	

130	1.	In a college, 120 mathematics students can opt for either French(F), German(G) or Russian(R). Write a code in scilab to find number of mathematics students taking a French and German but not Russian, considering the following data. Use Inclusion Exclusion principle. | 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 | 8 |	
	2.	Prove that for each positive integer n, the factorial of n denoted n! is defined to be t product of all the integers from 1 to n where n<=200 using recursive function.	
131	1.	Write a code in scilab to represent adjacency matrix.	
	2.	A license plate contains two letters followed by three digits where first digit cannot zero. Find total number of license plates that can be printed using product rule principle.	
132	1.	Write a code in scilab to show a countably infinite sets using cardinality.	

	2.	Write a code in scilab for a fair dice is tossed find,
		  a. Sample space that an even or a prime number occur
		  b. The event that an odd prime number occur
		  c. The event that a prime number does not occur	

138	1.	Write a code in scilab to evaluate polynomial function $2x^3 - 7x^2 + 4x - 15$ when x =	

	2.	In a college, out of 100 students 30 students taken mathematics and 20 students tak chemistry. Write a code in scilab for finding the,
		  a. Probability of students selecting mathematics
		  b. Probability of students selecting chemistry
		  c. Probability of students taking mathematics or chemistry.	

152	1.	In a college, 120 mathematics students can opt for either French(F), German(G) or Russian(R). Write a code in scilab to find number of mathematics students taking a French and German but not Russian, considering the following data. Use Inclusion Exclusion principle.	
		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	8
	2.	Prove that for each positive integer n, the factorial of n denoted n! is defined to be t product of all the integers from 1 to n where n<=200 using recursive function.	
156	1.	Write a code in scilab to find Number of power set and proper subset of the set contain 6 elements.	
	2.	Write a scilab code to perform the following: a. Factorial of 6 b. Value of 8! / 6! c. Value of 12! / 9!	
163	1.	In a college, 120 mathematics students can opt for either French(F), German(G) or Russian(R). Write a code in scilab 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.	
		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	8
	2.	Write a code in scilab to represent path matrix.	
166	1.	Write a code in scilab to find cardinality of a set containing 4 and 7 elements.	
	2.	Write a code in scilab for three unbiased coins are tossed. 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	
171	1.	Write a code in scilab to find Number of power set and proper subset of the set contain 6 elements.	
	2.	Write a scilab code to perform the following: 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.

ROLL NO	NAME OF STUDENT
156	Project on the topic "E-Waste Management" (Minimum 5 pages)
171	Project on the topic "Seven Cs of Effective Communication:" (Minimum 5 pages)