



Prahladrao Dalmia Lions College of Commerce & Economics

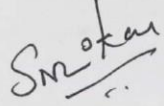
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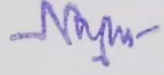
Date: 10 APR 2019

IMPORTANT INSTRUCTIONS WHILE SUBMITTING INTERNAL PROJECT (ATKT), APRIL, 2019

- 1) The project should be hand written only.
- 2) The project should be submitted on foolscap paper.
- 3) The student should write his name, department, semester, exam seat no. and subject on the first page.
- 4) Student should download and take the printout of questions to his Roll no. and attach it with his answer paper.
- 5) Student to submit photocopy of fee payment receipt with every subject.
- 6) Student should submit the project as mentioned below:


Prof. Durgesh Kenkre
(Exam Convener)


Prof. Subhashini Naikar
(Vice Principal, Degree SFC)


Dr. N. N. Pandey
(Principal)

DI/N-STD/GEN/00

BSc.I.T. Semester I				
Name of the Subject	Name of the faculty	Day & Date	Timings	Room No
Imperative Programming	Prof. Rupali	Thursday, 18-Apr-19	12 noon to 12.30 PM	LAB
Operating System	Prof. Sanjana	Thursday, 18-Apr-19	12 noon to 12.30 PM	LAB
Discrete Maths	Prof. Aditi	Thursday, 18-Apr-19	12 noon to 12.30 PM	LAB
Digital Electronics	Prof. Aditi	Thursday, 18-Apr-19	12.30 noon to 1.00 PM	LAB
Business Communication Skills	Prof. Bhavna	Thursday, 18-Apr-19	12 noon to 12.30 PM	LAB

BSc.I.T. Semester III				
Name of the Subject	Name of the faculty	Day & Date	Timings	Room No
Applied Mathematics	Prof. Aditi	Thursday, 18-Apr-19	12 noon to 12.30 PM	LAB

Note:

- 1) Any submissions after the above mentioned day, date and time will not be accepted.
- 2) On the day of submission there will be a viva voce on the basis of the topics given.

F.Y.B.Sc. IT
Semester I, INTERNAL ATKT, April 2019
Subject: Discrete Mathematics

Roll Number: 122

1. Define Universal Existential Statement and Existential Universal Statement. Give examples of each.
2. Find the number of integers between 1 and 250 that are divisible by 2 or 3 or 5 or 7.
3. Define necessary and sufficient conditions and only if as applied to universal conditional statements.
Rewrite the following statements as formal and informal quantified conditional statements. Do not use the word necessary or sufficient.
 - i. Squareness is a sufficient condition for rectangularity.
 - ii. Being at least 35 years old is a necessary condition for being President of the United States.
4. Disprove the following by giving two counter examples:
 - i. For all real numbers a and b , if $a < b$ then $a^2 < b^2$.
 - ii. For all integers n , if n is odd then $(n - 1)/2$ is odd.
 - iii. For all integers m and n , if $2m + n$ is odd then m and n are both odd.
5. Use the quotient-remainder theorem with $d = 3$ to prove that the product of any three consecutive integers is divisible by 3. Use the mod notation to rewrite the result

F.Y.B.Sc. IT
Semester I, INTERNAL ATKT, April 2019
Subject: Discrete Mathematics

Roll Number: 128

1. Prove that $72n + (23n-3)(3n-1)$ is divisible by 25 $\forall n \in N$
2. Determine the sequence whose recurrence relation is $a_n = 4a_{n-1} + 5a_{n-2}$ with $a_1 = 2$ and $a_2 = 6$
3. Draw the directed graph for the following relations:
 - i. A relation R on $A = \{0,1,2,3\}$ by $R = \{(0,0),(1,2),(2,2)\}$.
 - ii. Let $A = \{2, 3, 4, 5, 6, 7, 8\}$
and define a relation R on A as follows: *For all $x,y \in A, x R y \Leftrightarrow x \mid y$.*
4. Determine whether the following relations are reflexive, symmetric, transitive or none of these. Justify your answer.
 - i. R is the “greater than or equal to” relation on the set of real numbers: *For all $x, y \in \mathbf{R}, x R y \Leftrightarrow x \geq y$.*
 - ii. D is the relation defined on \mathbf{R} as follows: *For all $x, y \in \mathbf{R}, x D y \Leftrightarrow xy \geq 0$.*
5. For the following either draw the graph as per the specifications or explain why no such graph exists:
 - i. Graph, circuit-free, nine vertices, six edges.
 - ii. Tree, six vertices, total degree 14.
 - iii. Tree, five vertices, total degree 8
 - iv. Graph, connected, six vertices, five edges, has a nontrivial circuit.
 - v. Graph, two vertices, one edge, not a tree

F.Y.B.Sc. IT
Semester I, INTERNAL ATKT, April 2019
Subject: Discrete Mathematics

Roll Number: 155

1. There are four bus lines between A and B and three bus lines between B and C. In how many ways can a man travel.
 - i. by bus from A to C by way of B?
 - ii. round-trip by bus from A to C by way of B?
 - iii. round-trip by bus from A to C by way of B if he does not want to use a bus line more than once?
2. A bakery produces six different kinds of pastry, one of which is eclairs. Assume there are at least 20 pastries of each kind.
 - i. How many different selections of twenty pastries are there?
 - ii. How many different selections of twenty pastries are there if at least three must be eclairs?
 - iii. How many different selections of twenty pastries contain at most two eclairs?
3. Define Cartesian product. Let R denote the set of all real numbers. Describe $R \times R$.
4. Let R be the set of all real numbers and define a relation R on $R \times R$ as follows:
For all (a, b) and (c, d) in $R \times R$, $(a, b) R (c, d) \Leftrightarrow$ either $a < c$ or both $a = c$ and $b \leq d$.
5. Write the negation of each of the following statements as simply as possible
 - i. If she works, she will earn money.
 - ii. He swims if and only if the water is warm.
 - iii. If it snows, then they do not drive the car.
 - iv. John is 6 feet tall and he weighs at least 120 kg.
 - v. The train was late or Amol's watch was slow.

F.Y.B.Sc. IT
Semester I, INTERNAL ATKT, April 2019

SUBJECT: Operating System

Roll Number: 122

- 1) What are the different types of Operating System?
- 2) Explain the concept of Scheduling.
- 3) Write note on UNIX operating System.
- 4) Explain type 1 and type 2 hypervisor.

Roll Number: 152

1. Write note on virtualization.
2. Explain various page replacement algorithms.
3. Write note on LINUX operating system.
4. What is deadlock? How it is recovered.

Roll Number: 155

- 1) What is Operating System? Explain various system calls.
- 2) What are the different operations that can be performed on file.
- 3) Write note on Android operating system.
- 4) Explain various methods of deadlock detection and recovery.

F.Y.B.Sc. IT
Semester I, INTERNAL ATKT, April 2019
SUBJECT: COMMUNICATION SKILL

Roll Number: 109

1. Discuss the cross cultural communication strategies.
2. What are the different types of listening?
3. How conference is planned and conducted?
4. How are the effective paragraph developed? Explain.

Roll Number: 123

1. List and explain the benefits and limitation of grapevine communication.
2. Explain the two types of electronic resume.
3. What are the communication activities in medium sized projects?
4. Explain the steps in executing presentations.

Roll Number: 128

1. What are the different roles of manager? Explain.
2. State the differences between direct approach and indirect approach to business message.
3. Enlist the key points in the process of briefing.
4. How to create an outline for the presentation?

Roll Number: 148

1. Explain Branches of Accountancy.
2. Explain Cost Concept & Dual Aspect Concept with example.
3. Explain AS9.
4. What is Capital expenditure? Explain with examples.

Roll Number: 154

- 1) What are the two major forms of nonverbal communication?
- 2) Explain the various types of business proposal based on target audience.
- 3) Mention any five advantages of teleconferences.
- 4) Write a note on basic communication model.

Roll Number: 155

- 1) Discuss the need for using technology in business communication.
- 2) State the various purposes of team presentations.
- 3) What are the different benefits of advertising?
- 4) Explain the plain stage in detail.

F.Y.B.Sc. IT
Semester I, INTERNAL ATKT, April 2019

Subject: Digital Electronics

Note: Write steps for the following questions

Roll no: 105

1. Design and implement 8:3 encoder using logic gates
2. Draw the logic circuit and write the truth table for the following POS equation:
 $Y = \pi M(0,1,3,4,6,8,11)$
3. Simplify and implement the above expression on the breadboard and verify the truth table

Roll no: 128

1. Design and implement 3:8 decoder using gates.
2. Design and implement combinational circuit based on following expression after minimizing using K-maps.
 $Y = \Sigma m(1,3,7,11,15) + d(0,2,5)$
3. Design and implements digits using seven segment display.

Roll no: 136

1. Design and implement 4:1 multiplexer using logic gates
2. Design and implement half subtractor and full subtractor using gates.
3. Design and implements digits using seven segment display.

Roll no: 151

1. Design and implement 1:4 Demultiplexer using logic gates
2. Design and implement basic gates using NAND gates and NOR gates.
3. Design and implements digits using seven segment display.

F.Y.B.Sc. IT
Semester I, INTERNAL ATKT, April 2019

Subject: Digital Electronics

Note: Write steps for the following questions

Roll no: 152

1. Implement 1:4 Demultiplexer using IC 74139 and 4:1 Multiplexer using IC 74153
2. Draw the logic circuit and write the truth table for the following POS equation:
 $Y = \pi M(0, 1, 3, 4, 6, 8, 11)$
3. Simplify and implement the above expression on the breadboard and verify the truth table
4. Draw the pinout diagram for the ICs used.

Roll no: 155

1. Design and implements digits using seven segment display.
2. Draw the logic circuit and write the truth table for the following POS equation:
 $Y = \pi M(0, 1, 3, 4, 6, 8, 11)$
3. Simplify and implement the above expression on the breadboard and verify the truth table

Roll no: (2017-19) 143

1. Design and implement serial – in serial – out shift register.
2. Draw the logic circuit and write the truth table for the following SOP equation:
 $Y = \Sigma m(0, 1, 2, 3, 5, 6, 7)$
3. Simplify and implement the above expression on the breadboard and verify the truth table
4. Draw the pinout diagram for the ICs used.

F.Y.B.Sc. IT
Semester I, INTERNAL ATKT, April 2019

Subject: Imperative Programming

Roll No: 128

1. Write a program to add 10 to even indexed numbers of an array.
2. Write a program to display factorial of a number.
3. Write a program to illustrate the use of recursive function.
4. Write a program to display first 10 multiples of a number divisible by 5, 20 And 7.
5. Write a program to find the sum of digits of a number.

Roll No: 153

1. Write a program to find the addition, subtraction, multiplication and
2. Write a program to perform addition and subtraction of two pointer Variables
3. Write a program to display a table of a number
4. Write a program to add three user defined numbers (use function)
5. Write a program to illustrate the use of pointers.

Roll No: 155

1. Write a program to display the addition of first 20 even numbers.
2. Write a program to illustrate the use of structure.
3. Write a program to display the following pattern.
4. Write a program to create a one dimensional array and store and display data 20 in it.
5. Write a program to swap two numbers without using third variable.

S.Y.B.Sc. IT
Semester III, INTERNAL ATKT, April 2019
Subject: Applied Mathematics

Roll Number: 208

1.	Verify Cayley – Hamilton Theorem for the matrix A. $A = \begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$
2.	Simplify $\frac{(\cos\theta - i\sin\theta)^6 (\cos 5\theta - i\sin 5\theta)^{-2}}{(\cos 8\theta + i\sin 8\theta)^{1/2}}$ using De-Moivre's theorem.
3.	Solve $(p-2x)(p-y)=0$
4.	Evaluate by using Laplace transform $\int_0^{\infty} t^2 e^{-t} \sin t dt$
5.	Solve $y=xp+ 1/p$

