



SCHOOL OF ADVANCED SCIENCES

Fall Semester 2024-2025

Continuous Assessment Test – I

Programme Name & Branch : B.Tech. (Computer Science and Engineering)

Slot: A2+TA2

Course Name & code: Discrete Mathematics and Graph Theory (BMAT205L)

Class Number (s): VL2024250102591, VL2024250102592, VL2024250102590

Faculty Name (s) : Dr. Pallavi Mishra, Dr. Anjaneyulu G.S.G.N, Dr. Gayatri S Panicker

Exam Duration: 90 Min.

Maximum Marks: 50

General instruction(s): Answer all the questions

Q.No.	Question	Max Marks	CO
1.	a) Write the converse, inverse, and contrapositive of the statement "I go to the college whenever my friends come". Which of these is logically equivalent to the given statement?	5	CO1
	b) Without using truth table, find PCNF and PDNF for $(p \wedge q) \vee (\sim p \wedge r)$	5	
2.	Using Indirect method of proof, show that the premises "My father praises me only if I can be proud of myself. Either I do well in sports or I can not be proud of myself. If I study hard, then I cannot do well in sports" lead to the conclusion "If father praises me, then I do not study well".	10	CO1
3.	Verify the validity of the following argument "A student has not completed his daily homework. Everyone in the class completed their monthly assignments. Therefore, someone who has completed his monthly assignments has not completed his daily homework"	10	CO1
4.	Verify whether $(Z^+, *)$, where $*$ is defined as $a * b = a + b + 1$ ($+$ is the ordinary addition) forms a group, where Z^+ is the set of positive integers.	10	CO2
5.	Prove that the order of a subgroup of a finite group divides the order of the group.	10	CO2