22MAT121-Discrete Mathematics
AIE-A

SET-A

1. Construct a truth table for the proposition $(p \to (q \to r)) \leftrightarrow (p \to (\neg q \vee r))$. [3 Marks]
2. Write the following statement using predicates and quantifiers by taking employees in the company as domain and then find the negation of the statement : "Every employee in the company who works hard will get increment and will be motivated." [3 Marks]
3. show that the premises "Either it will rain, or it will be sunny.", "If it is sunny, then we will go to the park.", "If it rains, then the picnic will be canceled." and "The picnic is not canceled." lead to the conclusion "We will go to the park, and either it will rain or it will be sunny." [4 Marks]

22MAT121-Discrete Mathematics
AIE-A

SET-B

1. show that the premises "If John takes the bus, he will arrive late.", "Either John will drive to work, or he will take the bus.","If John drives to work, there will be a traffic jam.", and "There is no traffic jam." lead to the conclusion "John will arrive late and either drive to work or take the bus." [4 Marks]
2. Construct a truth table for the proposition $(\neg p \to (q \to r)) \leftrightarrow (q \to (p \to r))$. [3 Marks]
3. Write the following statement using predicates and quantifiers by taking musicians in the band as domain and then find the negation of the statement : "There is a musician in the band, who practices hard and will improve his skills or will collaborate with others" [3 Marks]

22MAT121-Discrete Mathematics
AIE-A

SET-C

1. Write the following statement using predicates and quantifiers by taking Scientists in the lab as domain and then find the negation of the statement : "Every scientist in the company who conduct the experiment will get good results or will share the findings with the team " [3 Marks]
2. show that the premises "If the team loses, then the coach will resign.", "If the team wins, then there will be a celebration.", "Either the team will win the game, or they will lose.",, and "There will not be a celebration." lead to the conclusion "The coach will resign, and either the team will win or lose the game." [4 Marks]
3. Construct a truth table for the proposition $((p \vee q) \to r) \leftrightarrow ((p \to r) \wedge (q \wedge r))$. [3 Marks]