Q1. Ramesh wants to purchase a car during Diwali, 2023. He has decided to evaluate the car along four parameters. He has assigned criteria weights of *price, fuel efficiency, comfort* and *looks* as 0.4, 0.2, 0.1 and 0.3 respectively. The performance weights of criteria on different cars (Alternatives) are shown in the Table 1. In a scale of 1-5, the different numerical scales used for average, Good, Very Good, Excellent and outstanding are 1, 2, 3, 4, & 5 respectively. Find the rank of the alternatives using TOPSIS method. **[15]**

	Price	Fuel Efficiency	Comfort	Looks
CAR "AA"	4	15	Good	Average
CAR "BB"	8	16	Good	Good
CAR "CC"	10	17	Excellent	Excellent
CAR "DD"	3.5	16	Average	Average

Q2. Discuss in detail the followings: **[3*6]**

    A. Importance of "R+C" and "R-C" in DEMATEL method
    B. Procedure for Questionnaire Development
    C. Different clusters of ISM approach

Q3. Discuss the generic difference exists in terms of its application between multi-criteria decision making and empirical analysis. **[5]**

Q4. Give your remark (Tue or False) of the following statement with proper justification

"The importance of MCDM increases for supply chain design decisions in comparison to supply chain planning and supply chain operation decisions ." **[5]**

Q5. A start-up company wants to decide its location for its operations. The manager of the company has shortlisted four alternative locations. The company wants to evaluate these alternative locations using four attributes and each attribute has three sub-attributes. The manger has decided to evaluate these alternatives using AHP. Develop a hierarchical structure for such decision making. **[7]**

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