Extended SQL

The following relations are given (primary keys are underlined, optional attributes are denoted with *):

- Customer(CustomerID, CustomerSurname, Province, Region)
- Category(CategoryID, CategoryName)
- Agent(AgentID, AgentSurname, Agency)
- Time(TimeID, Month, Quarter, Semester, Year)
- Sales(TimeID, CustomerID, ItemCategoryID, AgentID, TotAmount, NumSoldItems, TotDiscount)

a) Show for each category of items,
   - The category
   - The total sale amount for the category
   - The total number of sold items within the category
   - The rank of the category according to its total sale amount
   - The rank of the category according to its total number of sold items
   - Sort the result for increasing value of total number of sold items within the category

b) Show, for each province
   - The province
   - The region of the province
   - The total sale amount for the province
   - The rank of the province according to its total sale amount, separately for each region

c) Show, for each province and month
   - The province
   - The region of the province
   - The month
   - The total sale amount for the province in the current month
   - The rank of the province according to its total sale amount, separately for each month

NB: The same month, in different years, should be managed as a different month. For example, the month January in 2007 is different from the month January in 2006.

d) Show, for each region and month
   - The region
   - The month
   - The total sale amount for the region in the current month
   - The cumulative sale amount for increasing months, separately for each region

NB: The same month, in different years, should be managed as a different month. For example, the month January in 2007 is different from the month January in 2006.
**Queries**

a)  SELECT CategoryName, SUM(TotAmount), SUM(NumSoldItems)
RANK() over (ORDER BY SUM(TotAmount) DESC) as RANK_TotAmount,
RANK() over (ORDER BY SUM(NumSoldItems) DESC) as RANK_NumSoldItems,
FROM Sales S, Category C
WHERE S.ItemCategoryID = C.CategoryID
GROUP BY C.CategoryID, CategoryName
ORDER BY RANK_NumSoldItems;

b)  SELECT Province, Region, SUM(TotAmount),
RANK() over (PARTITION by Region ORDER BY SUM(TotAmount) DESC)
as RANK_TotAmountRegion
FROM SALES S, CUSTOMER C
WHERE S.CustomerID = C.CustomerID
GROUP BY Province, Region;

c)  SELECT Province, Region, Month, SUM(TotAmount),
RANK() over (PARTITION by Month ORDER BY SUM(TotAmount) DESC) as CumulativeAmount
FROM SALES S, CUSTOMER C, TIME T
WHERE S.CustomerID=C.CustomerID AND S.TimeID=T.TimeID
GROUP BY Province, Region, Month;

d)  SELECT Region, Month, SUM(TotAmount),
SUM(SUM(TotAmount)) over (PARTITION by Region
ORDER BY Month
ROWS UNBOUNDED PRECEDING) as CumulativeAmount
FROM SALES S, CUSTOMER C, TIME T
WHERE S.CustomerID=C.CustomerID AND S.TimeID=T.TimeID
GROUP BY Region, Month;