

## **Quadrant II – Transcript and Related Materials**

**Programme: Bachelor of Science (First Year)**

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**Paper Title: Biodiversity II (Vascular plants)**

**Unit: 06**

**Module Name: Ranks, Categories and Taxonomic groups**

**Module No: 50**

**Name of the Presenter: Ms. Diksha D. Naik**

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### **Notes**

#### **Taxonomic Hierarchy**

The Taxonomic groups thus formed and arranged are next assigned to various categories, having a fixed sequence of arrangement- Taxonomic hierarchy. Most inclusive group assigned to the highest category- generally a division. Least inclusive to lowest category- usually a species.

The names are assigned to the taxonomic groups in such a way that the name gives an indication of the category to which it is assigned. E.g. - Rosales, Myrtales, and Malvales all belong to the order category. Rosaceae, Myrtaceae and Malvaceae to the family category.

Once all the groups have been assigned categories and named, the process of classification is complete. Because of the hierarchical arrangement of categories to which the groups are assigned, the classification achieved is known as hierarchical classification.

## **RANKS, CATEGORIES AND TAXONOMIC GROUPS**

Taxonomic groups, categories and ranks are inseparable once a hierarchical classification has been achieved.

### **CATEGORIES**

Categories are like shelves of an almirah, having no significance when empty, and importance and meaning only after something has been placed in them. Thereafter, the shelves will be known by their contents. They are artificial and subjective and have no basis in reality. They have fixed position in the hierarchy. They are obligate categories. There are 7 main taxonomic categories.

1. **Species:** is a natural population of individuals or group of population. They resemble one another in all essential morphological and reproductive characters. E.g.: Mango- species *indica* of genus *Mangifera* (*Mangifera indica*). Potato- species *tuberosum* of genus *Solanum* (*Solanum tuberosum*).
2. **Genus:** is a group or assemblage of related species which resemble one another in certain correlated characters. All the species of genus are presumed to have evolved from a common ancestor.
3. **Family:** contains one or more related genera. All the genera of a family have some common features or correlated characters.
4. **Order:** includes one or more related families. E.g.- Family solanaceae is placed in the order polemoniales along with four other related families.
5. **Class:** is made of one or more related order. E.g.- Class dicotyledons of flowering plants contains all dicots which are grouped into several orders (e.g. Rosales, passiflorales, polemoniales, ranales, etc.).

6. **Division:** a category higher than that of class. It is formed of one or more classes.
7. **Kingdom:** it is the highest taxonomic category. All plants are included in kingdom plantae.

There are some extra categories like sub division, sub order, sub family, tribe, sub tribe, etc. They are not regularly used. They are used only when they are needed.

## **RANKS**

There is practically no difference between category and rank, except in the grammatical sense. *Rosa* thus belongs to the category genus, and has generic rank. If categories are like shelves, ranks are like partitions, each separating the given category from the category above.

## **TAXONOMIC GROUPS**

Objective and non-arbitrary to the extent that they represent discrete sets of organisms in nature. Taxonomic groups are biological entities or a collection of such entities. By assigning them to a category and providing an appropriate ending to the name (Rosaceae with ending –aceae signifies a family), we establish the position of taxonomic groups in the hierarchical system of classification.