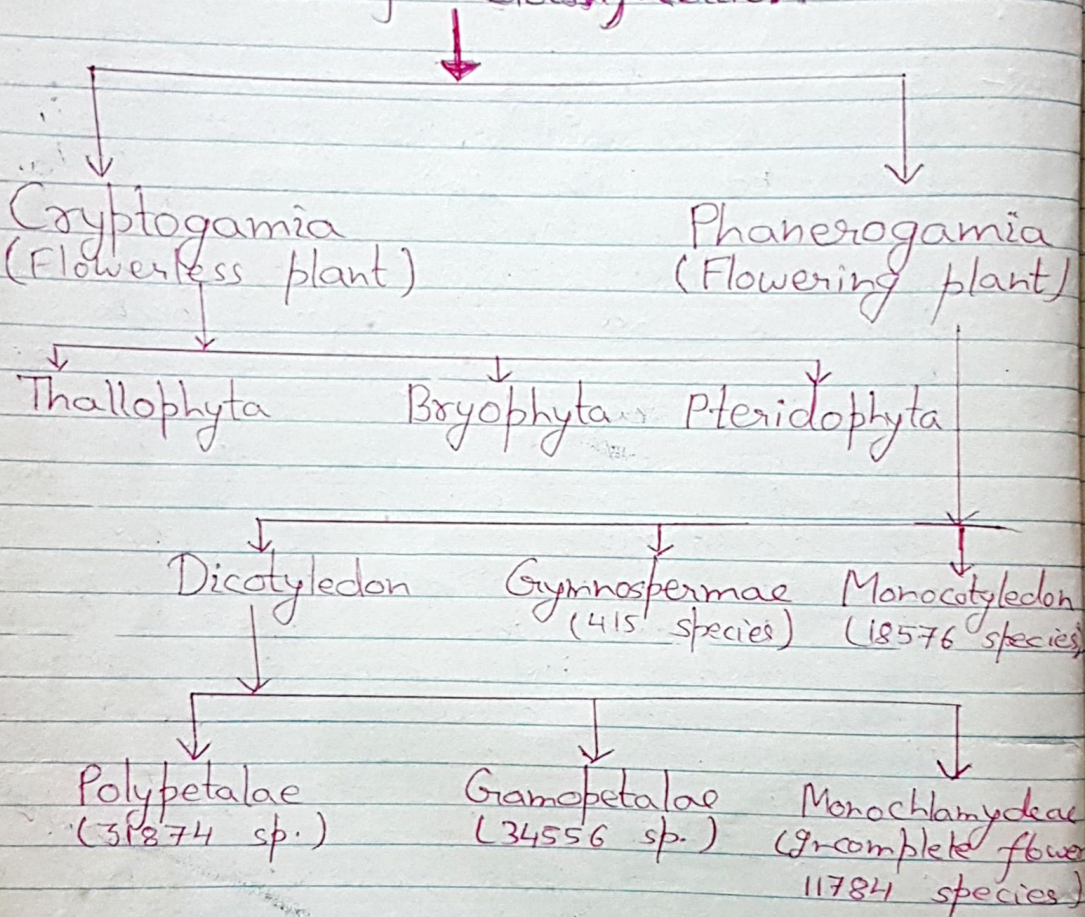
Q. Describe the Bentham and Hooker's system of classification & give its merits & demer

Ans:- George Bentham (1800 - 1884) and Sir Joseph Hooker (1817 - 1911), two great English taxonomist associated with the royal Botanical garde of Kew (England), adopted a very comprehensive system of classification in their "Genera Plantarum" book (1862 - 1883) which for some years dominated in the botanical world. It is virtually an extension of the work of De Jussieu and De. Candolle. According to this system of classification the plant kingdom comprises about 97205 species of seeded plant included in 202 orders (families) and grouped into cohorts (Orders). Many herbaria of the world even now have the arrangment of the plants according to this system of classification. In our country the two great herbaria at Calcutta and Dehradoon use this system for maintaning the large no. of plants. The nature of petals whether they are free or united is a dominant constituent of this system, but the position of gymno-sperm in this system is a technical error. The Bentham and Hooker's system of classification may be summarised as follows —

Bentham & Hooker's System of Classification



Group ① Angiosperm → Ovules enclosed in an ovary and pollination through stigma and style.

Sub-Group Ⓐ - Dicotyledons → Radicles from the primary root, herbs, shrubs and trees, perennial, reticulate venation, floral part free or united, usually in 5 or multiple of 5, embryo with two cotyledons consisting of pith and annual ring separable bark and increasing in size.

Division ① - Polypetalae → Calyx, corolla present where petals are free.

Series ⓐ - Thalamiflorae → Calyx and corolla are free, petals uniseriate or two seriate, stamen inserted in the receptacle. Here 1-6 cohorts are found which start from cohorts - ① Ranales to cohorts ⑥ Malvales, were 1-33 orders are found which starts from order ① Ranunculaceae to order ㉝ Tiliaceae.

Series ⓑ - Disciflorae → Calyx free, petals uni-seriate, stamen definite in no., carpels free which starts from cohorts ⑦ Geraniales to cohorts ⑩ Sapindales and order ㉞ Lineae to order ㊳ Moringeae.

Series ⓒ - Calyciflorae → Calyx and corolla usually surrounded the ovary, petals inserted to the calyx tube, ovary inferior. It starts from cohorts ⑪ Rosales to cohorts ⑮ Umbellales and it includes order 56 Connaceae to order ㉜ Coraraceae.

Division ⑪ - Gamopetalae → Flowers with both calyx and corolla, petals united, stamen few, epipetalous.

Series ⓐ Inferae → Ovary inferior, stamen equal to the lobes of the corolla. It start from cohorts ① Rubiales to cohorts ③ Campanules. It includes order ⑬ Caprifoliaceae to order ㊶ Campanulaceae.

Series ⓑ Heteromerae → Ovary superior or inferior, stamen free and equal to the petals, carpels more than 2. It includes cohorts ④ Ericales to cohorts ⑥ Ebenales and it includes order ㊷ Vaccinareae to order ⑩③ Styraceae.

Series ⓒ Bicarpellatae → Ovary superior, stamen free,

alternate with petal and equal to the petal carpels 1-3. It includes cohorts ⑦ Centrospermae to cohorts ⑩ Lamiales and it also include order ⑭ Oleaceae to order ⑯ Labiatae.

Division ⑪ - Monochlamydeae → Flowers mostly unisexual, incomplete, small sepaloid and perianth present. It includes series ① Curvembryoae to series ⑧ Ordinales and it also include order ⑰ Nyctaginaceae to order ⑬ Ceratales.

Sub-Group ⑧ - Monocotyledons → Herbs, rarely shrubs, vascular bundle present and scattered and cambium absent, stem without pith, leaves large, parallel veination, perianth present, embryo monocotyledon, hypogeal germination and fibrous root present. It includes series ① Microspermae to series ⑦ Glumaceae. It also includes order ⑭ Hydrocharitaceae to order ⑲ Graminoae.

Group ② - Gymnosperm → Shrubs or tree, stem with cambium pith present, leaves needle like, scaly flowers in cone or in spike, unisexual, perianth absent, ovules naked, 2 to many cotyledons, epigeal germination, pollination through direct contact of the pollen grains with ovules due to the absence of stigma and style. It includes order ⑳ Gnetaceae to order ㉒ Cycadaceae.