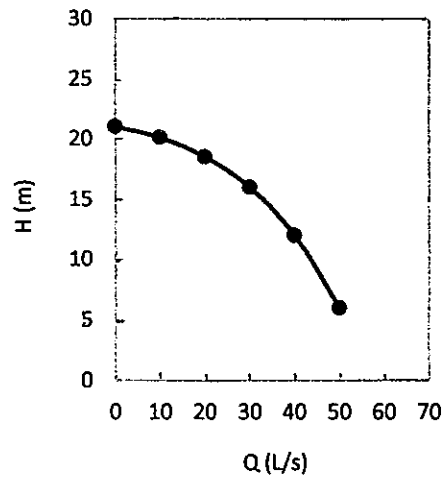


1. 請詳細說明下列名詞 (20 分)

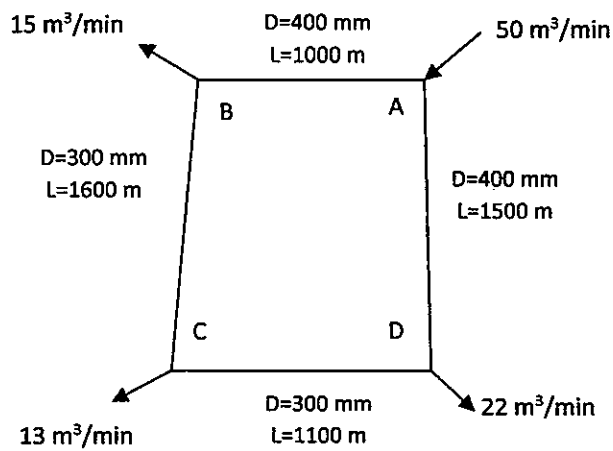
- (a) 孔隙率
- (b) 水力坡降
- (c) 重現期距
- (d) 水庫分層現象

2. 已知一抽水機之揚程(H)與抽水量(Q)的關係如下圖:



請繪圖說明兩台相同的該抽水機，串聯組合與並聯組合的揚程與抽水量的關係。(10 分)

3. 一管網配置如下圖所示，管線材質為塑膠管，各節點間之管徑(D)及管長(L)如圖所示，如何求得各管中之流量及流速？請說明計算的原理、步驟及如何確認該配置的合理性 (不必計算)。(20 分)



4. Please explain the following terms and their related environmental implications. (25 分)

- (a) Electrical double layer
- (b) Sedimentation theory (Type I, II, III, and IV settling)
- (c) Breakpoint chlorination
- (d) Simultaneous nitrification/denitrification
- (e) Moving bed biofilm reactor

見背面

5. Sketch a flow diagram and describe all the processes for a drinking water treatment with rapid filtration. (8 分)
6. Why is the food-to-microorganism ratio (F/M) crucial in the biological process of secondary wastewater treatment? (7 分)
7. Sketch a flow diagram and describe all the processes for a municipal wastewater treatment plant using the activated sludge-membrane bioreactor (AS-MBR) technology. Also explain the advantages and disadvantages of using the AS-MBR. (10 分)

試題隨卷繳回