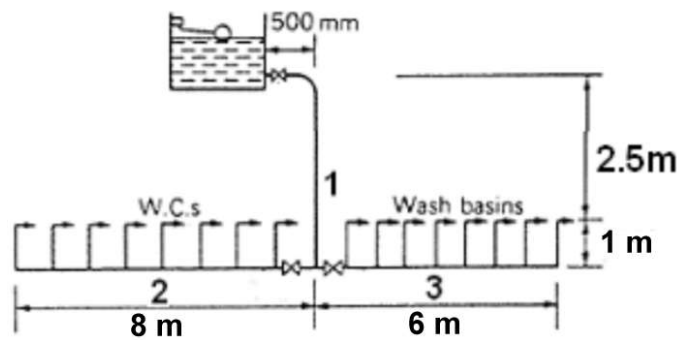


Assignment 01 – Water Supply Systems, Drainage and Sewage Disposal

1. Cold and Hot Water Supply Systems

- 1.1 Briefly explain the water treatment process for fresh water supply in Hong Kong. Illustrate with diagrams. (10 marks)
- 1.2 The Total Water Management (TWM) strategy in Hong Kong has mapped out the strategy for sustainable use of water to ensure water security and support the development of the society. Describe the major areas of the TWM strategy and discuss its implications to plumbing engineering design. (10 marks)
- 1.3 Explain the key factors to be considered when selecting and designing hot water supply systems. Suggest two environmental-friendly methods to provide hot water in buildings and briefly describe their working principles. (10 marks)
- 1.4 Explain the meaning of “dead legs” in hot water systems and suggest two methods to avoid them to reduce the risk. (10 marks)
- 1.5 Water supply from a cistern is shown on the diagram below. Develop a table to do the pipe sizing for the three pipe sections (number 1, 2 and 3) as shown on the diagram. Show clearly all the assumptions and calculation results.



- 1.6 Briefly describe the pros and cons of using the following pipe materials in water supply systems: (a) copper, (b) stainless steel and (c) polyethylene. Indicate the jointing methods suitable for each of them. (10 marks)

2. Sanitation and Drainage

- 2.1 Briefly explain the possible reasons for the loss of water seal in building drainage systems. Illustrate with diagrams. (10 marks)
- 2.2 Discuss why the sanitary drainage system could be a risk for the spread of COVID-19 in 2020 and SARS disease in 2003. What are the possible methods to prevent this? (10 marks)

3. Sewage Disposal

- 3.1 Compare the pros and cons of the three types of arrangement for sewage disposal systems: (a) combined system, (b) separate system and (c) partially separate system. (10 marks)
- 3.2 Explain the typical process of sewage treatment. Illustrate with diagrams. (10 marks)