

Environmental Engineering



Tutorial 1b Sewage Treatment

Answer any TWO questions from Section A and one from Section B.

Section A

1.		Draw a flow diagram showing the various sewage treatment processes. Your diagram should show all the processes as described in Q.2 and Q.3.
2.		State the objectives (purposes) of preliminary, primary and secondary treatments.
3.		State the objectives (purposes) of each of the following types of treatment. i) screening ii) Grit removal iii) skimming iv) coagulation and sedimentation v) filtration vi) activated sludge vii) disinfection viii) sludge digestion
4.		State the purposes of measuring BOD.
5.	(a)	Define ThOD, BOD ₅ , COD.
	(b)	Define effluent and sludge.
6.		Briefly describe the tests for BOD ₅ and COD.
7.		What are the advantages and disadvantages of using coagulation over plain sedimentation in sewage treatment process.
8.		Explain the working principles of activated sludge treatment process.
9.		What are the advantages and disadvantages of activated sludge treatment process.
10.		Discuss the various methods of sludge disposal.
11.		Describe the sludge digestion process.
12.		With the help of annotated diagram, explain the principle of sludge digestion tank.
13.		Briefly describe the SSDS scheme.

Section B

1.		Discuss how industrial sewage can be reduced. (hints: 5 R's)
2.		Describe the disposal of construction waste and marine mud in Hong Kong (hints : any information on the web sites ?)
3.		Assuming you are the site agent of a construction site, outline a waste water disposal scheme to control water pollution by your site. (hints: what are the characteristics and quantity of waste water generated in a construction site ?)