B.TECH. CIVIL ENGINEERING (BTCLEVI)
Term-End Examination
00075   December, 2014

BICE-018 : ENVIRONMENTAL ENGINEERING – II

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

1. What factors affect the quality of sanitary sewage ? Describe the method of estimating sanitary sewage of a city in detail.   *3+7=10*

2. Describe the following with the help of neat sketches   *5+5=10*
    (a) Syphon spillway
    (b) Ventilation of sewers

3. Explain the main factors affecting self-purification of streams.   *10*

4. Sketch a flowsheet of complete sewage treatment, using Activated Sludge Process of 5 MLD capacity showing clearly the primary and secondary units. Indicate the approximate size of all units based on 5 MLD capacity.   *10*

5. Design an Oxidation Ditch for a town with following data : *10*

(a) Population = 7,000

(b) Organic load of the sewage =
45 g BOD/cap/day

(c) Sewage flow = 145 *l*/cap/day

(d) Organic loading rate =
6500 mg BOD/cap/day

(e) Concentration of suspended solids in mixed liquor = 4000 mg/L

(f) Permissible BOD in effluent = 50 mg/L

6. Describe the configuration and working principle of UASB reactor. *10*

7. With a neat sketch explain the Imhoff tank. *10*

8. Design a septic tank for 50 users, assuming rate of water supply as 60 *l*/head/day. Storage capacity for 2 years of cleaning is 0.0708 m^3. Provision for natural digestion is 0.0425 m^3/head. *10*

9. How does the Common Effluent Treatment Plant (CEPT) differ from Sewage Treatment Plant ? Prepare a flow chart of CETP for oil refinery plant. Give justification for the units. *5+5=10*

10. What are the factors to be considered for site selection of STP ? Discuss the waste water characteristics and parameters to be analysed for designing a new STP. *5+5=10*

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