

**B.Tech. IN CIVIL ENGINEERING (BTCLEVI)**

**Term-End Examination**

**December, 2014**

00325

**BICEE-024 : ADVANCED ENVIRONMENTAL  
ENGINEERING**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Answer any **five** questions. Scientific calculator is allowed. All questions carry equal marks. Assume any suitable data, if missing.

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1. (a) Discuss the types of settling in detail. 7  
(b) What do you understand by coagulation and flocculation ? Why are they necessary ? 7
2. Describe in detail the granular media filtration methods of suspended solids removal during advanced waste water treatment. 14
3. (a) What do you understand by advanced waste water treatment ? Enumerate the important advanced waste water treatment processes. 6  
(b) Describe the method of adsorption by activated carbon. 8

4. (a) What do you understand by secondary treatment (or biological treatment) of waste water ? Enumerate the various treatment techniques used for biological treatment. 6
- (b) Compare low rate and high rate trickling filters. 8
5. (a) Explain the causes of air pollution in detail. 7
- (b) Write the effects of various air pollutants on physical features of the atmosphere. 7
6. (a) List the four methods of controlling air pollution. 4
- (b) Explain, with the help of diagrams, various types of plume behaviour. 10
7. Write short notes on any **four** of the following :  $4 \times 3 \frac{1}{2} = 14$
- (a) Zones of pollution in a river stream
- (b) Noise level for different areas
- (c) Oxidation ditch
- (d) Tube settlers in waste water treatment
- (e) Carbon monoxide pollution