Anirban DRuli

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- May 2017

B.Tech(8^{th})/ M.tech (2^{nd}) Semester

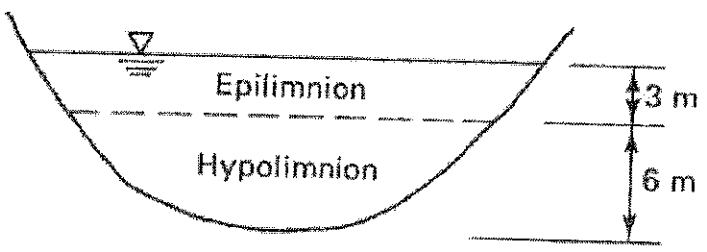
COURSE CODE: 14M31CE215 MAX. MARKS: 35

COURSE NAME: Surface Water Quality Management

COURSE CREDITS: 03 MAX. TIME: 2 Hrs

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

1. What do you mean by Morphometry of a river? Discuss the empirical relationships between the flow, velocity and depth or area of a river. **(5)**
2. Discuss the physical, chemical and biological characteristics relevant for river water quality management. Discuss the effects of land use on river flow. **(4)**
3. Define mass loading. Discuss on the different sources of mass loading inputs on surface water body. **(4)**
4. Discuss the distinction between water quality criteria and water quality standards. A municipal wastewater treatment plant has a discharge of 36 MGD and an effluent concentration of 14 mg/l. What is the BOD discharge load in kg/day? **(4)**
5. What do you mean by eutrophication? What are the factors responsible for eutrophication of lakes? **(4)**
6. Using the empirical hypolimnetic DO demand rate (S) of Rast and Lee (1978), determine the temporal variation of hypolimetic DO for various total phosphorus loadings. Given Q= 0.186 m^3/s, V= 11.7 X 10^6 m^3, A= 1.3 X 10^6 m^2, period of stratification= 100 days, hypolimnetic DO concentration at beginning of stratification = 9.0 mg/l



(3)

7. Distinguish between key morphological features of a stream, estuary and a lake. Differentiate between travel time and flushing time. What are the forces of self purification in an estuary? (5)
8. How do you measure water turbidity in surface waters? Discuss the factors which influence the rate of oxidation of organic matter in streams. (4)
9. Distinguish between a "Baseline Station" and a "Trend Station". (2)