VI SEMESTER B.TECH. MAKE UP EXAMINATIONS - JULY 2022

SUBJECT: **PE-II, ENVIRONMENTAL POLLUTION CONTROL ENGINEERING [CHE 4055]**

Time: 3hrs. Max. Marks: **50**

Instructions to Candidates:

- **Answer ALL the questions**

Q1. "Prevention is better than cure". Elaborate in detail on this to justify the statement with respect to pollution control in process industries. (4)

Q2. With neat sketch, explain the dynamics of Nitrogen cycle. Explain the reasons for the impact and effects on this cycle. (4)

Q3. Explain the classification and sources of air pollutants. (3)

Q4. Explain the estimation of BOD and COD in wastewater. Explain the significances of these tests in wastewater treatment methods. (4)

Q5. What do you understand by biological treatment of wastewater? Compare and contrast between activated sludge process and trickling bed filters. (4)

Q6. "Air pollution monitoring is an integral part of air pollution control program". Justify the statement. (2)

Q7. "Fundamentals of Chemical Engineering are essential for design of Howard settling chamber". Justify the statement and deduce an equation for collection efficiency of a Howard settling chamber assuming the laminar flow condition. (4)

Q8. Explain the following techniques for control of gaseous pollutants.

i) Flaring ii) Catalytic combustion. (4)

Q9. Define: i) Smog ii) Lapse rate. (2)

Q10 Explain the different types of water pollutants indicating their sources and effects. (4)

Q11. Explain the sequential operations for sludge treatment and disposal. What are the various unit operations involved in the processes? (4)

Q12. Differentiate between TTS and NIPTS. (2)

Q13. With the help of generalized flow diagrams, explain any two processes for control of NO_X. (4)

Q14. What are the different pollutants that enter the environment by way of discharges from a fertilizer plant? With a neat flow sheet, explain the treatment methods employed in a nitrogenous fertilizer plant. (4)

Q15. What do understand by MINAS? Explain its plan of action for any on process industry. (2)