



### VI SEMESTER B.TECH (OPEN ELECTIVE)

### END SEMESTER EXAMINATIONS, APRIL 2018

SUBJECT: AUTOMOTIVE POLLUTION AND CONTROL (AAE 3284)

**REVISED CREDIT SYSTEM**  
**(28/04/2018)**

Time: 3 Hours

MAX. MARKS: 50

#### Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Missing data **IF ANY**, may be suitably assumed and mentioned clearly

- 1A.** Identify the possible sources of pollutants from gasoline engine. Discuss the major five constituents from the exhaust of IC engines and its direct effects on human life **(05)**
- 1B.** What is the significance of CRDI technology? Explain with neat block diagram working principle and functional aspects of each module in CRDI **(05)**
- 2A.** What is the need for instrumentation for pollution measurement? Explain with neat sketch the principle, functional aspects of Chemiluminescence NO<sub>x</sub> Analyzer. **(05)**
- 2B.** Discuss the effects of the following operating variables on emission pollutants such as unburned hydrocarbons, carbon monoxide in Gasoline engine **(05)**
  - a) Air fuel ratio   b) Engine speed   c) Spark timing   d) Valve overlap
  - e) Combustion chamber deposit build up
- 3A.** What is the cause and effect of wall quenching? How the incomplete combustion occurs? What are the factors that influence the incomplete combustion? **(05)**
- 3B.** Discuss the concept of stratified engine. Explain with neat sketch the working principle of Direct Injection Stratified Charge engine and its advantages. **(03)**
- 3C.** Explain the following fuel specification terms (a) Relative density b) Specific heating value **(02)**

- 4A.** What is fuel cell? State the difference between fuel cell and the battery cell? (05)  
How fuel cells are classified? Explain with neat sketch Alkaline fuel cell, its characteristics and advantages
- 4B.** What do you mean by the process over mixing and under mixing of fuel in CI Engines? Explain the effect of over mixing. Why does soot occur more in diesel engines? (05)
- 5A.** What is thermochemical method of bio conversion? Describe with neat sketch updraft gasifier , different process zones, advantages and limitations (05)
- 5B.** Explain the cause and effects of detonation in CI engine and how is it controlled? (05)