

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(AE) (2011 Onwards) (Sem.-4)**  
**AUTOMOTIVE FUELS AND EMISSIONS**

Subject Code : BTAE-405

Paper ID : [A1165]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

**Q1 Answer briefly :**

- a) Brief about roadmap for alternative fuels.
- b) What should be properties of automotive fuels?
- c) Write short note on wood gas.
- d) Are DEE and DME liquefied petroleum gases? Give reason.
- f) Brief about hydrogen boosters.
- g) What is basic chemistry combustion in 4 stroke SI engine?
- h) Define hart ridge.
- i) What are applications of ammonia as fuel?
- j) Define aldehyde emissions.

### **SECTION-B**

- Q2 What advantages and disadvantages of biogas as fuel for automotive?
- Q3 Discuss about technological up gradations required in relation with fuel.
- Q4 Explain the water process and features of boron.
- Q5 Illustrate about the emissions of CI engines as pollutant sources.
- Q6 Brief about :
- a) Compressed natural gas and
  - b) Orsat apparatus.

### **SECTION-C**

- Q7 To reduce pollution explain different post combustion treatments.
- Q8 Discuss about the properties, production and storage of emulsified fuels.
- Q9 Explain in detail about the analyzer for NO<sub>x</sub> and Chemiluminescent analyzer.