

[Total No. of Questions - 9]      [Total No. of Printed Pages - 3]  
(2063)

850

**B.Tech 4th Semester Examination**

**Auto Fuels and Lubrication**

**AU-4001**

**Time : 3 Hours**

**Max. Marks : 100**

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note :** Attempt one question each from section A, B, C, D.  
Section E is compulsory.

**SECTION - A**

1. Describe various methods of testing fuels and lubricants. (15)
2. Write short notes on.
  - (a) Catalytic cracking
  - (b) Thermal cracking
  - (c) Alkylation Isomerisation. (15)

**SECTION - B**

3. (a) Describe the mechanism of combustion in Diesel engine.  
(b) What do you mean by Cetane rating of fuel? (15)
4. What is the requirement of additive in fuel?  
Discuss petrol and diesel fuel additive. (15)

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**[P.T.O.]**

**SECTION - C**

5. Describe LPG and CNG as an alternative fuel in engines. (15)
6. (a) Classify lubricating oil.
- (b) Discuss various requirements for automotive lubricants. (15)

**SECTION - D**

7. What do you mean by total engine friction? Discuss the effect of engine variables on friction. (15)
8. Write short notes on :
- (a) Boundary lubrication.
- (b) Bearing lubrication
- (c) Elasto-hydrodynamic lubrication (15)

**SECTION - E**

9. (i) Define viscosity index.
- (ii) Discuss various products of refining process with a sketch.
- (iii) Discuss knocking phenomenon in diesel engine.
- (iv) What are units of viscosity and kinematic viscosity in S.I. and C.G.S. system?
- (v) Discuss various safety considerations while using LPG as fuel in engines.

- (vi) Solar cars are not popular, why?
  - (vii) What are various components of an electric vehicle?
  - (viii) Discuss the applications of synthetic lubricants.
  - (ix) Classify various types of Grease.
  - (x) Sketch lubrication system in car engines.
- (4×10=40)**