



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 147601**

Roll No.

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## B. Tech.

### (SEM. VI) THEORY EXAMINATION, 2014-15 AUTOMOTIVE FUELS AND LUBRICANTS

Time : 3 Hours]

[Total Marks : 100

*Note: (1) Attempt all questions. Be precise in your answer. Draw neat and clean diagram where ever required. Assume data suitably if necessary.*

#### 1. Attempt any Five Questions

(5 X 4 = 20)

- Explain the types of products of refining process. Briefly?
- Explain the properties of petrol fuel.
- Explain thermo-chemistry of fuels with example and reaction and how it works?
- Explain structure of refining process with block diagram.
- Derive and explain the Atomic Packing Factor:-
  - Vapor Pressure
  - Isomerisation
  - Flammability
- Write Short notes:
  - Pour Point
  - Relative Density
  - Thermal Cracking

#### 2. Attempt any Two Questions

(10 X 2 = 20)

- Explain Octane number and cetane number and why are these number required?

- g) Write Short notes:
  - i. Aniline Point
  - ii. API Gravity
  - iii. Flash Point
- b) Explain the additives of petrol and diesel fuel.

**3. Attempt any Two Questions (10 X 2 = 20)**

- a) Explain the effect of flames in S.I and C.I engine with neat sketch.
- b) Explain and classify the various types SI engine propagation of flame with neat sketch.
- c) Write Short notes:
  - i. Electric Vehicle
  - ii. Mechanism of Combustion
  - iii. Diesel Knock

**4. Attempt any Two Questions (10 X 2 = 20)**

- a) Explain the need of alternative fuel for automobile and what is future of alternative fuel in India?
- b) What is future if Bio-Diesel in India and how Bio-diesel is used for Diesel Vehicle what are design parameters?
- c) Explain the difference between CNG, LNG & LPG.

**5. Attempt any Two Questions (10 X 2 = 20)**

- a) Explain hydro-dynamic lubricating system. What are advantages and disadvantages?
- b) Explain the different types of tests of lubricating oil, briefly?
- c) Write Short notes:
  - i. Electric Vehicle
  - ii. Mechanism of Combustion
  - iii. Effect of engine variables on friction

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