

**B.TECH. SEM -V (CHEMICAL 2014 COURSE (CBCS) : WINTER -
2017**

SUBJECT : ELECTIVE – I: COMBUSTION ENGINEERING

Day **Saturday**
Date **20/01/2018**

Time **02.30 PM TO 05.30 PM**
Max. Marks : 60

W-2017-2117

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagrams wherever necessary.
- 4) Assume suitable data if necessary.

Q.1 Define the following important properties of liquid petroleum fuel and its measurement techniques: [10]

- | | | |
|--------------------|----------------|----------------|
| a) API Gravity | c) Cloud point | e) Flash point |
| b) Viscosity index | d) Pour point | |

OR

Explain in detail fuel scenario in India. [10]

Q.2 Discuss the methods of mining of coal for recovering of coal from the earth crust. [10]

OR

Describe with neat block diagram coal tar distillation process. [10]

Q.3 Explain the process of Exploration of crude oil with important properties of oil reservoir rock. [10]

OR

Discuss the different types of equipments used for different purposes in refinery. [10]

Q.4 Write short notes on the following gaseous fuels: [10]

- | | |
|-----------------|-----------------|
| a) Producer gas | b) Hydrogen gas |
|-----------------|-----------------|

OR

Give the composition of Natural gas and explain the non-associated and associated gas reservoir with neat diagram. [10]

Q.5 Describe with neat diagram construction and working of blast furnace. [10]

OR

a) Calculate the percentage excess air for methane burning if the flow rate of methane and air are 25 and 290 m³/h respectively. [05]

b) Define adiabatic flame temperature and its significance. [05]

Q.6 Give the different types of incineration techniques and explain any one of them in detail. [10]

OR

Write a short note on incineration as a waste management method. [10]

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