Centre for Energy Studies

Time: 1 hr.

ESL-711 Fuel Technology Minor Test - I

Marks: 20

PART A: 13 Marks

1. A sample of air-dried coal on analysis shows (experimentally determined values % by weight):

Moisture 2.6 Ash 12 Volatile Matter 41

And on dry basis it shows:

Carbon 66.4 Hydrogen 4.7 Nitrogen 3.7 Sulphur 0.5

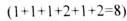
Calculate

- i) % fixed carbon on dry basis
- ii) % oxygen on air dried basis
- iii) % volatile Matter on dry mineral matter free basis
- iv) % Hydrogen on air dried basis
- v) Calorific value on air-dried basis calculated using ultimate analysis data.

$$(\frac{1}{2} + \frac{1}{2} + 1 + 1 + 2 = 5)$$

2. Explain the following:

- i) Coal seam and coal measure
- ii) Indian Coals are believed to be of drift origin
- iii) Wood charcoal is good but costly fuel as compared to dry wood.
- iv) Geochemical stage of coal origin
- v) Inherent moisture content and inherent ash content of coal
- vi) Presence of low melting mineral components and sulphur in coal is problematic.



PART B: 7 Marks



Write short notes on the following topics: 1.

a) Asphaltic crudes

b) Geological methods of oil detection/exploration

(4)

2. Describe the one major difference between the origin of petroleum crude oil and coal.

Answer Yes or No



- a) Indian crudes are of mostly sour
- b) Middle East crudes are of mixed base type.
- c) Aromatics are predominantly present in naphthenic crudes.
- d) United Arab Emirates (UAE) is the number one oil producing country in the (2)world.

