## **GUJARAT TECHNOLOGICAL UNIVERSITY**

BE - SEMESTER-V • EXAMINATION - WINTER • 2014

Date: 08-12-2014

Subject Code: 152206

**Subject Name: Fuel Technology** 

|     |     | 10.30 am - 01.00 pm Total Marks: 70  |   |
|-----|-----|--|---|
|     |     | <ol> <li>Attempt all questions.</li> <li>Make suitable assumptions wherever necessary.</li> <li>Figures to the right indicate full marks.</li> </ol> |   |
| Q-1 | (a) | List out the various components of Bomb calorimeter & explain detail 0 method of finding C.V. of solid fuel.   | 7 |
|     | (b) | Discuss the aim of ultimate analysis & explain proximate analysis in detail. 0   | 7 |
| Q-2 | (a) | Explain main component of LPG & properties of LPG.   | 7 |
|     | (b) | Give the advantage of dry quenching & recovery process of various oubstances in Otto Hoffman method.   | 7 |
|     |     | OR   |   |
|     | (b) | Discuss the Low temperature carbonization & High temperature 0 carbonization.  | 7 |
| Q-3 | (a) | Write short note on: 1)Low temperature carbonization 2) Rank of coal 0' 3) Weathering/slacking index of coal Index                                   | 7 |
|     | (b) | Describe in detail the stages of coal formation with their calorific values. OR  | 7 |
| Q-3 | (a) | Write the procedure to find the following index of coke: 1) Micum index 0 shatter index 3) Cochrane index  | 7 |
|     | (b) | Discuss the following terms: 1) Theoretical calorific value 2) Petrography of coal   | 7 |
| Q-4 | (a) | Explain process unit of producer gas plant with neat sketch. 0   | 7 |
|     | (b) | Explain manufacturing process of water gas with figure.  OR  OR  | 7 |
| Q-4 | (a) | Explain coke oven gas in detail.   | 7 |
|     | (b) | Explain Lurgi process or fixed bed gasifier. 0   | 7 |
| Q-5 | (a) | Why gaseous fuel is more important than liquid & solid fuel?   | 7 |
|     | (b) | Enlist advantages & disadvantages of natural gas. 0 OR   | 7 |
| Q-5 | (a) | Write advantages & disadvantages of CNG as a S.I. engine fuel.   | 7 |
| -   | (b) | Explain following physical properties of coal: 1) Action of heat on coal 2) 0 Hard grove grind-ability 3) Angle of repose.                           | 7 |

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