Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

V SEMESTER B.TECH. (CHEMICAL ENGINEERING)

MAKE UP EXAMINATIONS, NOV/DEC 2016

SUBJECT: ENERGY ENGINEERING [CHE 4016]

REVISED CREDIT SYSTEM

Time: 3 Hours MAX. MARKS: 100

Instructions to Candidates:

- Answer **ALL** the questions.
- Missing data may be suitably assumed.

1A.	What are factors which affects the coal combustion? What are the different types of furnace atmosphere.	(6 marks)
1B.	Define blast saturation temperature. Write briefly about different zones of gas producers	(8 marks)
1C.	What are the strategies required for long-term management of energy in India? Write about the various reforms in the energy sector.	(6 marks)
2A.	Explain important petroleum products and their application. Explain the purification processes for refining of petroleum fuels.	(10 marks)
2B.	Describe the availability and a method of generation of energy from wind energy. What are the merits and demerits?	(10 marks)
3A.	Describe devolatilisation of coal at different temperature range. What is the composition of volatile matter in coal?	(7 marks)
3B.	What is the purposes of dividing the water gas manufacturing process into two stages? Explain about those two stages.	(7 marks)
3C.	What are the components that are fully developed in bituminous coal and explain the grading of Indian bituminous coals?	(6 marks)
4A.	Describe on factors to be considered for selection of burners and explain about Stoker firing systems stating its advantages	(8 marks)
4B.	How do the moisture content and carbon content vary with the rank of coal?	(5 marks)
4C.	What is Atmospheric Gas Burner ? How does it operate?	(7 marks)
5A.	What are the properties of coke? Explain coke ovens used in India. How is the recovery of by-products done?	(8 marks)
5B.	Explain in detail about low temperature carbonisation and high temperature carbonization	(4 marks)
5C.	Discuss the Lurgi and Texaco process for gasification of coal.	(8 marks)