Reg.No.										

प्रज्ञानं ब्रह्म

Manipal

INSPIRED BY LIFE

MANIPAL UNIVERSITY

Fifth Semester B.Tech. (Chemical Engineering)

SUBJECT: ENERGY ENGINEERING (CHE 305)

MAKE UP EXAMINATION – Jan 2016

KNOWLEDGE IS POWER

MANIPAL INSTITUTE OF TECHNOLOGY

Time : 3 hrs **Max Marks: 100**

- **Answer any FIVE full questions and all questions carry equal marks.**
- **Missing data, if any, may be assumed suitably.**

1A.	Define octane number and cetane number. Write the names of some octane number improvers.	**(10 marks)**
1B.	Which one is more important between the two and why: (a) Flash point and Fire point, (b) Pour point and cloud point	**(4 marks)**
1C.	What is Atmospheric Gas Burner ? How does it operate?	**(6 marks)**
2A.	How do the moisture content and carbon content vary with the rank of coal?	**(2 marks)**
2B.	Define the "dry and mineral matter free" and "as received" basis for coal.	**(4 marks)**
2C.	What are the different types of nuclear reactor? Explain about the working and advantages of fast breeder reactor and Pressurized water reactor.	**(14 marks)**
3A.	Explain Koppers-Totzek process of gasification system with a neat sketch. State its advantages.	**(10 marks)**
3B.	Describe devolatilisation of coal at different temperature range. What is the composition of volatile matter in coal?	**(10 marks)**
4A.	Define blast saturation temperature. Write briefly about different zones of gas producers.	**(10 marks)**
4B.	Discuss on Energy pricing in India and about Clean development Mechanism and its opportunities.	**(6 marks)**
4C.	What are the main advantages of steam blast over air blast for producer gas manufacture?	**(4 marks)**
5A.	What is the purposes of dividing the water gas manufacturing process into two stages? Explain about those two stages.	**(10 marks)**
5B.	What are factors which affects the coal combustion technology? Define different types of furnace atmosphere.	**(10 marks)**
6A.	Draw a block diagram to show different routes of coal to liquid fuel manufacture.	**(8 marks)**
6B.	Explain the availability,utilization and generation of solar energy?	**(12 marks)**