UNIVERSITY OF LUCKNOW
FACULTY OF ENGINEERING AND TECHNOLOGY
Department of Mechanical Engineering

POWER PLANT ENGINEERING (ME 604)
DIESEL POWER PLANT & GAS TURBINE POWER PLANT@ 2019-20(Even)

Year: 3rd ***Section: ME 3*** ***Last Date of Submission: 01/05/2020***

- ***Before starting the assignment first remove all confusion about the concept used in questions of assignment by the respective faculty member.***
- ***Submit Assignment on due date, no Assignment will be marked after due date***
- ***Submit Assignment in pdf form on my whatsapp, signing on each page.***
- ***Each Assignment carry equal marks in the internal marks of the subject***

Short answer questions

1. Define brake power and indicated power.
2. What is volumetric efficiency.
3. What do you mean by relative efficiency?
4. What is back work ratio and work ratio?
5. Define efficiency of turbine and compressor**.**
6. Differentiate between open and closed cycle gas turbine.
7. What is optimum pressure ratio/
8. What do you understand by degree of regeneration?
9. Show the condition of perfect intercooling.
10. Show the condition of perfect reheating.

Long answer questions

1. Describe the general layout of diesel power plant with diagram and also enlist the advantages of it.
2. What are the requirements of a good fuel injection system? Describe common rail and distributor injection system of a diesel engine.
3. What are the requirements of good lubrication system? Describe the working of wet sump lubrication system with neat and clean diagram.
4. What are the requirements of an efficient cooling system? Describe the working of thermosyphon and forced circulation cooling system with neat and clean diagram.
5. Why is super charging necessary in diesel power plant? Explain super charging methods in detail.
6. What is co-generation? Explain the methods of it.
7. Explain the combined cycle power plant with neat and clean sketch and state the advantages of it.

8. Derive the expression for efficiency of Brayton cycle. And also find the expression of maximum work done.

9. Discuss the effect of regeneration, intercooling and reheating in gas turbine.

10. Draw the arrangement, T-S and P-V diagrams of reheating, intercooling and reheating of gas turbine.