



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017			
Program:	B.Tech- EL	Semester	: VII
Subject (Course):	Power Station Practices	Max. Marks	: 100
Course Code:	PSEG 404	Duration	: 3 Hrs
No. of page/s:	2		

SECTION A (4Q x 5= 20 Marks, Attempt All)

- Q1. [CO1] Explain the importance of Turbine Rotor balancing system. What is ‘Critical Speed’ of a Turbine?
- Q2. [CO3] Enumerate the two most essential steps taken to limit (restrict) Steam Turbine blade erosion.
- Q3. [CO1, 2, 3] With reference to Heat Balance, which type of Turbine is more suitable in case of Co-generation Power Plant?
- Q4. [CO1] Give at least four major reasons a ‘Balanced Draft System’ shall be advantageous for large capacity Thermal Power Plant operation.

SECTION B (4Q x 10= 40 Marks, Attempt All)

- Q5. [CO1] Describe the method used in a generator / turbine to mitigate the load variation due to change in demand.
- Q6. [CO3, 4] Explain the Jacking Oil & Barring Gear system used in a Steam Turbine.
- Q7. [CO1, 2] Explain the four most essential functions of ‘Steam Condensate System’ along with appropriate diagram.
- Q8. [CO1] Explain with the help of appropriate figure the various types of Steam Turbine Rotor arrangements along with their respective operational or manufacturing advantages.

SECTION C (2Q x 20 = 40 Marks, Attempt All)

Q9. [CO3, 4]

(A) Using appropriate system feedback flow diagram explain Turbine Governing system.
State the primary function of Turbine Governing system.

(B) Explain the various methods of Turbine Governing.

Q10. [CO 2, 3, 4]

(A) Define SCADA and explain the various advantages & dis-advantages of SCADA.

(B) Explain along with an appropriate schema the operation of SCADA applicable for a 600 MW Thermal Power Plant required to be operated at a low load condition of 400 MW for a time duration of 15 days.

Roll No: -----



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SECTION A (4Q x 5= 20 Marks, Attempt All)

- Q1. [CO1] Explain the importance of 'Baumann Exhaust' in a Steam Turbine. In which Turbine do we apply the 'Baumann Exhaust'?
- Q2. [CO3] Enumerate the two most common methods applied to reduce heat loss due to steam leaving the LP- Turbine.
- Q3. [CO1, 2, 3] Explain the two most important function of Condensate Extraction Pump (CEP).
- Q4. [CO1] Explain the four most important function of 'Turbine Oil System'.

SECTION B (4Q x 10= 40 Marks, Attempt All)

- Q5. [CO1] Explain the difference between Tandem Turbine & Cross Compounded Turbine. Which among the two is more suitable for a Base Load Power Station & Peak Load Power Station? Give reasons.
- Q6. [CO3, 4] Explain with the help of appropriate figure the various types of Steam Turbine casing arrangements along with their respective operational advantages.
- Q7. [CO1, 2] Explain the difference between 'Steam Condensate System' and 'Feed Water Re-circulation System' along with appropriate diagram.
- Q8. [CO1] With the help of appropriate figure, explain the various types of Steam Condensers used in a Thermal Power Plant along with their respective operational advantages & disadvantages.

SECTION C (2Q x 20 = 40 Marks, Attempt All)

Q9. [CO3, 4]

(C) Explain the various types leakages that occur in a Steam Condenser along with their detection methods.

(D) Explain the various types of losses that occur in a Cooling Tower. The reduction of which type of loss in a Cooling Tower can increase the maintenance of the Condenser tubes. Give reasons.

Q10. [CO2, 3, 4] Explain the sequence of operation of the HP-LP Bypass system & PRDS (Pressure Reducing & De-superheating system) used during Turbine start-up. Use appropriate diagram.