

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2018

Course: POWER PLANT MAINTENANCE PRACTICE. (PSEG 415)

Semester: VII

Programme: B. Tech PSE + Electrical

Time: 03 hrs.

Max. Marks: 100

Instructions: All questions are compulsory

SECTION A

S. No.		Marks	CO
Q 1	Prepare a list for routine maintenance works for Steam turbine of a thermal power plant.	4	CO3
Q 2	Discuss the reasons for boiler tube failure.	4	CO4
Q 3	Elaborate the trouble shooting plan & its remedies for the different problems of station batteries	4	CO3
Q 4	Discuss the criterion adopted for first, second and subsequent overhauls of the generator major maintenance.	4	CO2, CO1
Q 5	Discuss the Maintenance planning strategy for maintenance section of Power plant	4	CO1

SECTION B

Q 6	Explain the factors, which effects the life of a transformer. Plan out the over haul works for the maintenance of Unit auxiliary transformer	10	CO2
Q 7	Discuss the safety precautions observed before & during internal inspection of electrostatic precipitators. Plan the shutdown maintenance works of Electrostatic precipitators for the auxiliaries under the jurisdiction of electrical maintenance section for 210 Mw Thermal sets.	10	CO1, CO2
Q 8	Briefly, explain the categories of misalignments. Explain the method of correction of misalignment of primary fan motor and its fan. Mention the tools required for the alignment	10	CO3
Q 9	The electrical maintenance department has completed overhaul of a BFP motor of 210 MW power plants recently, During no load trial, the engineer observed the rotor oscillations of the motor. In your opinion, what measures he should take to minimizing the oscillations. Discuss the entire procedure in detail and the precautions, while taking no load trials.	10	CO3

OR

	Discuss the precautions & preparatory works required for the groove cutting of slip ring of the 210 MW generators. Explain the steps involved in the arrangements for groove cutting. Also, mention the minimum dimensions of the slip ring, its allowable groove depth for 210 MW TA set.		
SECTION-C			
Q 10	<p>Discuss in detail, the essential requirements to be confirmed before availing the outage for annual overhaul of steam turbine and the inter-department coordination for smooth functioning of maintenance works. Also list out the maintenance works during overhaul of the turbine</p> <p style="text-align: center;">OR</p> <p>Discuss in detail the preparation and procedure for the boiler water-wall tube cleaning. Also, explain solvents required for boiler water-wall tube cleaning & their concentration.</p>	20	CO3
Q 11	<p>a) List out in detail, the activities carried out for the generator before the start of overhaul works.</p> <p>b) Prepare a list of the maintenance works for the generator overhaul and discuss them in detail.</p> <p>c) Discuss the electrical tests to be conducted after the completion of generator overhaul</p>	20	CO4

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Name of the School <small>(Please tick, symbol is given)</small>	:	SOE	☐	SOCS		SOP	
Programme	:	B. Tech. PSE + Electrical					
Semester	:	VII					
Name of the Course	:	Power Plant Maintenance Practice					
Course Code	:	PSEG 415					
Name of Question Paper Setter	:	Ram Mohan Sharma					
Employee Code	:	40000868					
Mobile & Extension	:	9997636035 / 1211					
Note: Please mention additional Stationery to be provided, during examination such as Table/Graph Sheet etc. else mention "NOT APPLICABLE":							
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Date of Examination	:						
Time of Examination	:						
No. of Copies (for Print)	:						

Note: - Pl. start your question paper from next page

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End Semester Examination, December 2018

Programme Name: B. Tech. PSE+Electrical

Semester : VII

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Course Code : PSEG 415

Max. Marks: 100

Nos. of page(s) : 2

Instructions: All questions are compulsory

SECTION A

S. No.		Marks	CO
Q1	Discuss the reasons for failure of the 210 MW boiler.	4	CO3
Q2	Prepare enhanced preventative process flow program for the systems coming under the jurisdiction of boiler maintenance	4	CO3
Q3	Discuss the routine maintenance activities of the 415 V Air Preheater Motor of Thermal Power Plant	4	CO2
Q4	Discuss the preventative maintenance activities of the Boiler transformer of Thermal Power Plant.	4	CO1
Q5	Explain the requirement of maintenance performance indices. Mention and explain them.	4	CO1

SECTION B

Q6	Discuss the precautions & preparatory works required for the groove cutting of slip ring of the 210 MW generators. Explain the steps involved in the arrangements for groove cutting. Also, mention the minimum dimensions of the slip ring, its allowable groove depth for 210 MW TA set.	10	CO3
Q7	Explain the shutdown maintenance works of Electrostatic precipitators for its electrical auxiliaries by the electrical maintenance section for 210 Mw Thermal sets. Also, discuss the precautions & safety observed during internal inspection of electrostatic precipitators.	10	CO1
Q8	The electrical maintenance department has completed overhaul of a FD motor of 210 MW power plants recently, the blades of cooling fan of the motor found damaged and hence replaced. During no load trial, the engineer observed the vibration of the motor on higher side. In your opinion, what measures he should take to minimizing the vibrations. Discuss the entire process in detail.	10	CO4

Q9	<p>Explain the importance of the battery capacity and prepare the trouble shooting plan for the possible problems of station batteries</p> <p style="text-align: center;">OR</p> <p>Discuss the reasons for boiler water-wall tube failure. Explain the types of solvents required for boiler water-wall tube cleaning & their concentration.</p>	10	CO4
SECTION-C			
Q10	<p>a) Briefly, explain the type of misalignments with the help of suitable diagrams. Explain the method of correction of misalignment. Mention the tools required for the alignment.</p> <p>b) List out in detail, the activities carried out before the start of overhaul works of the generator.</p> <p>c) Prepare and discuss the maintenance works for the generator overhaul.</p>	20	CO3
Q11	<p>Discuss in brief, the necessary requirement to be observed before availing the outage the overhaul and the maintenance works carried out during overhaul of the turbine</p>	20	CO3