

University of Technology-Electromechanical Engineering Dept.

Final Exam- - 2013-2014

Class: 4th year

Subject: Plant operation and maintenance

Examiner: Dr. Sadi T. Kurdi



Time: (3) hours.

Date: 2014

Note: attempt (5) question.

Name: ()

ID No. ()

Signature ()

Q1.

(7mark)

A load of (10.000kw) at a power factor of (0.8 lagging) is supplied by a 3-phase line whose voltage has to be maintained at (33kv) at each end .if the line resistor and reactance per phase are (5Ω and 10Ω) respectively. Calculate:
The capacity of the synchronous condenser to be installed for purpose. Comment on the result

Q2.

(7mark)

What are the conditions that make frequency maintenance and inspection of low voltage circuit breaker?

Q3.

(7mark)

What are the functions of transformer oil?

Q4.

(7mark)

A 500MVA, 60 Hz, turbine generator has a regulation constant ($R=0.05$ p.u) base on its own its rating. If the generator frequency increased by (0.01Hz) in steady-state, what is the decrease in turbine mechanical power output, assume affixed reference power setting.

Q5.

(7mark)

Explain with aid of figure the sequence operations are required to reduce the voltage of an on-load tap changing transformer? Why the tap changing is generally performed on load?

Q6.

(7mark)

What are the limitations of prime mover system?

(Attempt (5) questions)

University of Technology-Electromechanical Engineering Dept.
Mid Exam-First Attempt – 2013-2014

Class: 4th year
Subject: Power plant operation and
Maintenance
Examiner: Dr. Ban M. Mohammed



Time: 3 hour
Date:
Note: Attempt 5 Questions.

Name:

ID No.

Signature

Q1. Select the suitable answer

1. Because the impeller blades are curved the fluid pushed
a. Radially b. Tangentially c. All of them
2. In the equation " $C = \frac{\pi DN}{60}$ ", D means the diameter of the feed water pump.
a. Rotor b. Disc c. Impeller
3. Problems related with seals are.....
a. Leakage b. Losses of flushing c. All of them
4. Centrifugal pumps operate at speed
a. High b. Low c. Medium
5. In boiler feed pumps moving parts used to the working time.
a. Increased b. decreased c. All of them

7 Mark

Q.2 Define:

1. PH 2. Power Burner 3. Pressuretrol 4. Leak tight

7 Mark

Q.3 Explain briefly all matters relating with the reheat cycles (with the aiding of figures).

7 Mark

Q.4 What are the function of the following items:

1. Feed Check Valve 2. Pressure Gauge 3. Blow off cock

7 Mark

Q.5 Define all types of the centrifugal pumps efficiency (also write equation related with this pumps efficiency)

7 Mark

Q.6 Explain all matters relating with Governing/control valves of steam turbine (with the aiding of charts).

7 Mark

Good Luck