

AJAY KUMAR GARG ENGINEERING COLLEGE, GHAZAIABAD
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
SESSIONAL TEST – 2

Course: B. Tech
Session: 2017-18
Subject: Power Station Practice
Max. Marks: 50

Semester: VII
Section: EN-1, 2
Sub. Code: NEN 702
Time: 2 hour

Section-A

A. Attempt all parts.

(5x2 = 10)

- (1) Why is the moderator necessity in a reactor?
- (2) Differentiate between four stroke and two stroke engines.
- (3) Write some applications of gas turbine plants.
- (4) What is diversity factor? Why is it important?
- (5) What is depreciation reserve? Why is it necessary to maintain it?

Section-B

B. Attempt all parts.

(5x5 = 25)

- (6) What are the causes & effects of low power factor? Explain the method of power factor improvement using synchronous condensers.
- (7) Draw a diagram and explain the closed cycle gas turbine plant. Compare the Gas turbine plants with Steam plants.
- (8) Write a short note on 'Shielding against Nuclear Radiations'. Explain Advanced Gas Cooled Reactor (AGR) in detail with their diagram.
- (9) A generating station has a maximum demand of 25MW, a load factor of 60%, a plant capacity factor of 50% and a plant use factor of 72%. Calculate
 - The reserve capacity of the plant,
 - The daily energy produced

- Max energy that could be produced daily if the plant while running as per schedule were fully loaded.

(10) Explain the different types of substation. Draw a typical layout of 220/132 KV Substation.

Section-C

C. Attempt all parts.

(2x7.5 = 15)

(11) Discuss the operation of Diesel Power Plant in brief. Discuss the advantages, disadvantages and fields of application of diesel electric plant.

(12) A steam station has two units of 110 MW units. The cost data is as under:

S. No.	Specification	Unit-1	Unit-2
1	Unit Capital Cost (UC)	Rs 18000 per kW	Rs 30000 per kW
2	Fixed Charge Rate (FCR)	10%	10%
3	Capacity Factor (CF)	0.55	0.60
4	Fuel Consumption	0.7 kg/kWh	0.65 kg/kWh
5	Fuel Cost	Rs 1500 per 1000 kg	Rs 1500 per 1000 kg
6	Annual Cost of Operating Labour, Maintenance & Supplies (OM)	20% of Annual fuel cost	15% of annual fuel cost
7	Utilization Factor (UF)	1	1

Calculate

- Annual Plant Cost and generation cost of unit-1
- Annual Plant Cost and generation cost of unit-2
- Overall Generation cost of the station