

International Islamic University Chittagong

Department of Electrical and Electronic Engineering

B. Sc. Engineering in EEE

Midterm Examination, Spring 2022

Course Code: **EEE 4707**

Course Title: **Power Plant Engineering**

Time: 1 hour 30 minutes

Full Marks: 30

- (i) Answer all the questions. The figures in the right-hand margin indicate full marks.
(ii) Course Outcomes (COs) and Bloom's Levels are mentioned in additional Columns.

Course Outcomes (COs) of the Questions						
CO1	Students will be able to understand the operating principles and economics of different power plants.					
CO2	They will learn different possible engineering solutions for power plant in societal and environmental contexts					
CO3	They will be able to apply mathematical foundations to solve various power plants and power plant economics related issues.					
Bloom's Levels of the Questions						
Letter Symbols	R	U	Ap	An	E	C
Meaning	Remember	Understand	Apply	Analyze	Evaluate	Create

- 1) a) Differentiate among Power system, Power Station and Power Plant. CO1 An 5
Point out the importance of electrical energy.
- 1) b) What are the environmental effect of quick rental power plants? Discuss the environmental comparison aspects from cleanliness perspective of view for Water, Fuel and Nuclear Energy. CO2 U 5
- 2) a) Draw the schematic arrangement of Steam Power Plant. Write the basic operation principle of Steam Power Plant. CO1 R 5
- 2) b) A thermal station has following data: maximum demand=20,000KW, Load factor 40%; Boiler Efficiency 85%; Coal consumption 0.9Kg/Kwh; and cost of coal 300TK/ton. Determine: (i) Thermal Efficiency (ii) Coal bill per year. CO3 E 5
- Or,**
- 2) a) How coal and ash is handled in Steam power plant? What are the advantages of pulverized coal in steam power plant? CO1 R 5
- 2) b) A coal station has annual coal consumption bill 1,90,00,000 TK. Coal consumption 0.9 kg/kwh. If Load factor =40% and cost of coal 300TK/ton. Determine: (i) Average load and (ii) maximum demand. CO3 E 5
- 3) a) Name one of the gas based power plants in Bangladesh with it's capacity. Describe the operation of close cycle gas turbine with proper diagram. CO1 R 5
- 3) b) Draw and explain the schematic arrangement of Gas Turbine Power Plant (GTPP). CO1 An 5