

B.Sc.TE (2Yr): 4th Semester
B.Sc. in EEE: 8th Semester

Date: 05 March, 2024
Time: 02:30pm – 04:00pm

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

Mid-Semester Examination
Course Number: EEE 4801/4895
Course Title: Power Generation

Summer Semester: 2022 - 2023
Full Marks: 75
Time: 90 Minutes

There are **03 (three)** questions. Answer **all** the questions. The symbols have their usual meanings. Marks of each question and corresponding CO and PO are written in the brackets.

1. a) Define a nuclear power station. Justify the site selection for a nuclear power station. (12.5)
(CO1)
(PO1)
- b) A 75 MW steam power station uses coal of calorific value of 6400 kcal/kg. Thermal efficiency of the station is 30% while electrical efficiency is 90%. Calculate the coal consumption per annum when the station is delivering its full output. (12.5)
(CO2)
(PO2)
2. a) Sketch a block diagram of a solar PV system and briefly discuss about the use of its various components. (12.5)
(CO1)
(PO1)
- b) If you need to design a solar PV system to pump 25000 liters of water every day from a depth of about 10 meters (the drawdown is about 2 meters), then determine the required number of 75 Wp solar PV panels (operating factor is 0.75, mismatch factor is 0.85 and number of hours of peak sunshine/day is 6) and power rating of the pump (efficiency is 30%). (12.5)
(CO2)
(PO2)
3. a) Define and explain the importance of the daily load curve. (12.5)
(CO1)
(PO1)
- b) 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%. Find (i) the reserve capacity of the plant (ii) maximum energy that could have been produced daily if the plant running as per schedule, were fully loaded. (12.5)
(CO2)
(PO2)