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Name of the Program: B. Sc. in EEE
Semester: 8th Semester

Date: 23 February, 2023
Time: 02:00pm – 03:30pm

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

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

Summer Semester: 2021 - 2022
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 steam power station. Explain the factors are taken into account while selecting the site for a steam power station. (12.5)
(CO1)
(PO1)

b) A diesel engine power plant has one 700 kW and two 500 kW generating units. The fuel consumption is 0.25 kg per kWh and the calorific value of fuel oil is 10000 kcal/kg. Determine (i) the fuel oil required for a month of 30 days and (ii) overall efficiency. Plant capacity factor is 40%. (12.5)
(CO2)
(PO2)
2. a) Discuss the advantages of interconnected grid system. (12.5)
(CO1)
(PO1)

b) A generating station is to supply four regions of load whose peak loads are 10 MW, 5 MW, 8 MW and 7 MW. The diversity factor at the station is 1.5 and the average annual load factor is 60%. Calculate: (i) the maximum demand on the station, (ii) annual energy supplied by the station and (iii) suggest the installed capacity and the number of units. (12.5)
(CO2)
(PO2)
3. a) Discuss the diminishing value method of determining the depreciation of the power plant equipment. (12.5)
(CO1)
(PO1)

b) The equipment in a power station costs Tk 15,60,000 and has a salvage value of Tk 60,000 at the end of 25 years. Determine the depreciated value of the equipment at the end of 15 years using (i) straight line method, (ii) diminishing value method and (iii) sinking fund method at 5% compound interest annually. (12.5)
(CO2)
(PO2)