Department of Electrical and Electronics Engineering
Mar Athanasius College of Engineering, Kothamangalam
(Government Aided Autonomous Engineering College)

First Sessional Examination -August 2026

B24EE3T02 Power System I-S5 EA &EB

Time: 1.5 Hrs. Max Marks: 40

Part A [4*3 =12 marks]

1. What are the use of moderators and control rods in nuclear power reactors.? **[CO1]**
2. Define Diversity factor and explain its significance. **[CO1]**
3. Illustrate skin effect with suitable diagram. **[CO2]**
4. List transmission line parameters with the help of a diagram. **[CO2]**

Part B [2*14 = 28 marks]

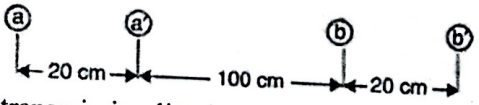
5. (a) With a neat schematic diagram illustrate the working of hydroelectric power plant. **[CO1] (7 Marks)**

   (b) A generating station has the following daily load cycle. **[CO1] (7 Marks)**

Time(Hours)	0-6	6-10	10-12	12-16	16-20	20-24
Load (MW)	40	50	60	50	70	40

   Draw the load curve.

6. (a) In a single phase line, conductors a and a′ in parallel form one circuit while conductors b and b′ in parallel form the return path. Calculate the total inductance of the line per km assuming that current is equally shared by the two parallel conductors. Conductor diameter is 2·0 cm. **[CO2] (7 Marks)**



   (b).A single phase transmission line has two parallel conductors 3 m apart, the radius of each conductor being 1 cm. Calculate the loop inductance per km length of the line if the material of the conductor is (i) copper (ii) steel relative permeability of 100. **[CO2] (7 Marks)**

CO 1: Understand different types of power generation sources and energy storage technologies, including environmental, ethical, and regulatory aspects, and evaluate generation economics using load curves and performance indices.

CO 2: Design electrical parameters of transmission lines and evaluate the performance of short, medium, and long transmission lines using ABCD parameters.

VISION

Endeavour to Ensure Excellence

MISSION

Mould technically competent and morally strong Engineers

Achieve dynamic leadership through quality Education

Cater the needs of industry and community through Emulation

Empower the students to serve the nation with Dedication