



# **MURANG'A UNIVERSITY OF TECHNOLOGY**

## **SCHOOL OF ENGINEERING**

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS**

**UNIVERSITY ORDINARY EXAMINATION**

**2020/2021 ACADEMIC YEAR**

**THIRD YEAR FIRST SEMESTER EXAMINATION FOR, DIPLOMA IN  
ELECTRICAL AND ELECTRONIC ENGINEERING**

**EEE 074- –POWER SYSTEM I**

**DURATION: 2 HOURS**

**Instructions to candidates:**

1. Answer question One and Any Other Two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

**SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION**

**QUESTION ONE (30 MARKS)**

- a) List five sources of electrical energy (5marks)
- b) Briefly explain the reason why electrical energy is more preferred compared to other forms of energy (5marks)
- c) Highlight five problems in production and use the nuclear energy (5marks)
- d) With the aid of a diagram briefly discuss the general set up of electrical power generation process (5marks)
- e) List five important components of overhead transmission line (5marks)
- f) With the aid of a curve briefly discuss the significance of depression in the economic power generation (5marks)

**SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION**

**QUESTION TWO (20 MARKS)**

- a) Discuss two types of conductors material used in overhead wires stating two advantages and disadvantages for each case (10marks)
- b) State three types of conductor support (3marks)
- c) With the aid of a sketch explain a strain insulator (7marks)

**QUESTION THREE (20 MARKS)**

- a) Explain at least three different types of power generation stating one advantage of each case (10marks)
- b) Briefly explain at least five general factors to be considered while choosing a site for any power generating power station (10marks)

**QUESTION FOUR (20 MARKS)**

- a) List five factors which influence the production cost of electrical energy (5marks)
- b) The total annual expenditure of a power plant is mainly classified in three major charges.
  - i. Fixed charges
  - ii. Semi- fixed charges
  - iii. Running charges

Explain the details of the above three changes highlighting the component entailed in each case (15marks)