



আন্তর্জাতিক ইসলামী বিশ্ববিদ্যালয় চট্টগ্রাম
 International Islamic University Chittagong
 Department of Civil of Engineering (CE), FSE

END-OF-SEMESTER EXAMINATION
 SEMESTER SPRING 2022

Programme : BSc. in Civil Engineering Level of Study : UG
 Time : 2:00~4:30pm Date : June 13, 2022 (Monday)
 Duration : Two hours and thirty minutes
 Course Code : EEE-1107 Section(s) : 1
 Course Title Basic Electrical Engineering.

This Question Paper consists of **Three (3)** Printed Pages (Including Cover Page) with Five (5) Questions in two sections (there are two Questions in section A and three Questions in Section- B, respectively).

USE SEPARATE ANSWER SCRIPT FOR EACH SECTION.

INSTRUCTION(S) TO CANDIDATES

DO NOT OPEN UNTIL YOU ARE ASKED TO DO SO

- Total mark of this examination is **100**.
- This examination is worth **50%** of the total course assessment.
- Answer **ALL Questions**.
- Only approved calculator with 'CE- approved' sticker is allowed (non-programmable and non-graphical).
- Marks assigned to each question are listed in the margin.

Any form of cheating or attempt to cheat is a serious offence, which may lead to dismissal.

All electronics gadgets are prohibited in the exam hall/venue.

(e.g. mobile/smart phones, smart watches, and smart glasses)

Section A: 40 Marks
Answer All Two (2) Questions

QUESTION 1 (20 Marks)

- a) Short note: Voltage, current and power, RMS value. (12)
- b) Determine the average value of the waveform: (08)

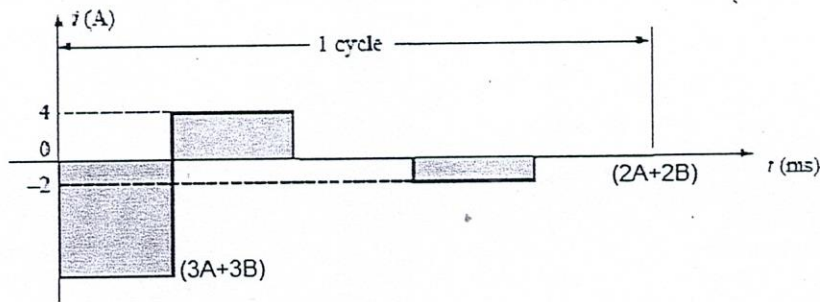


Fig 1

Where, A and B are last two digits of your ID.

QUESTION 2 (20 Marks)

- a) Find the phase angle between $i_1 = -5\cos(377t + (2A+2B)^\circ)$ and $i_2 = 8\cos(377t + (3A+2B)^\circ)$. where A and B are last two digits of your ID. (12)
- b) Find the sinusoids represented by these phasors: (08)
- i. $I = (2A + j2B) \text{ A}$
 - ii. $V = j(2A+2B)e^{-j(3A+3B)^\circ} \text{ V}$
- where A and B are last two digits of your ID

Section B: 60 Marks
Answer All Three (3) Questions

QUESTION 3 (20 Marks)

- a) Write in brief: Principle of operation for DC generator (12)
- b) Show the classification chart of DC generator. (08)

QUESTION 4 (20 Marks)

- a) A 220V C machine has an armature resistance of 0.5Ω . If the full-load armature current is $(5A+5B)A$, Find the induced emf when the machine acts as (i) generator (ii) motor. (12)

where A and B are last two digits of your ID

- b) Short note: Speed control of Shunt motor. (08)

QUESTION 5 (20 Marks)

- a) The maximum flux density in the core of a 250/3000 volts, 50 Hz single-phase transformer is 1.2 Wb/m^2 . if the e.m.f per turn is $(2A+4B)$ volt, determine (12)

- primary and secondary turns
- area of the core

- b) Write in brief: Principle operation of single phase transformer operation. (08)

END OF PAPER

International Islamic University Chittagong

Department of Civil Engineering

Final Assessment Test of EEE -1108 (Electrical Circuit sessional)

Spring 2022 (B.Sc. in Civil Engineering)

Time: 10AM-1PM

4. Explain the operation of measuring instruments shown in Figure 3 in own words. [5 Marks]



Fig.3

5. What is the difference between motor and generator. Explain with figure and own words. [5 Marks]
6. Write a short note about diode in own words. [5 Marks]
7. Write a short note about transformer in own words. [5 Marks]
8. Write a short note about your visit to IIUC substation [5 Marks]
9. Write from experience: Why the civil engineers need to know the basic of Electrical Engineering? [5 Marks]
10. What is current and voltage? [5 Marks]