

**International Islamic University Chittagong**  
**Department of Electrical and Electronic Engineering**

**Final Assessment Test Autumn-2020**

Program: B.Sc. Engg. (EEE)

Course Code: **EEE-4807**

Course Title: **High Voltage Engineering**

Time: **5 hours** (Writing - **4 hours 30**

Full Marks: **50** (Written 30 + Viva/Viva-Quiz-20)

**minutes + 30 minutes** submission time)

[Answer **each of the** questions from the followings; Figures in the right margin indicate full marks. **Answer script must be submitted through online method within 5 hours from starting time. Also, write down the Q. Set on the front page of your answer script]**

**SET-A**

- |              |  |                 |               |                 |
|--------------|--|-----------------|---------------|-----------------|
| <b>1(a).</b> | <b>Explain</b> the improvement of impulse generator while using tripping circuit instead of delay cable.   | <b>CO2</b>      | <b>An</b>     | <b>03</b>       |
| <b>1(b).</b> | <b>What</b> is the significance of dc power supply in impulse generator? <b>Compare</b> the various types of capacitors used in impulse generator.   | <b>CO2</b>      | <b>R, An</b>  | <b>01+02=03</b> |
| <b>2(a).</b> | <b>Compare</b> the suitability of Townsend's and Streamer mechanism. <b>Deduce</b> the expression of the breakdown voltage as the function of product pressure and electrode separation with related figure. | <b>CO1</b>      | <b>An, E</b>  | <b>02+02=04</b> |
| <b>2(b).</b> | From the various methods of breakdown in solid dielectric, <b>illustrate</b> the fastest breakdown mechanism with related diagram.   | <b>CO1</b>      | <b>U</b>      | <b>02</b>       |
| <b>3(a).</b> | <b>Discuss</b> the various steps of the operation of peak voltmeter consisting of capacitive voltage divider arrangement for measuring high voltage. Why modification of peak voltmeter is required?         | <b>CO2</b>      | <b>An</b>     | <b>03+01=04</b> |
| <b>3(b).</b> | <b>Explain</b> the routine test and test between terminals in case of testing of power capacitors.   | <b>CO2</b>      | <b>E</b>      | <b>02</b>       |
| <b>4(a).</b> | <b>Explain</b> the volt-time characteristic curve considering the variation of time range between wave front flashover to no impulse flashover.  | <b>CO3</b>      | <b>E</b>      | <b>04</b>       |
| <b>4(b).</b> | <b>Discuss</b> various features of external and internal overvoltage protection based on shielding and non-shielding technique.  | <b>CO3</b>      | <b>An</b>     | <b>02</b>       |
| <b>5(a).</b> | <b>Compare</b> between Simpson's theory and Wilson's theory for lightning phenomenon.  | <b>CO3</b>      | <b>An</b>     | <b>03</b>       |
| <b>5(b).</b> | <b>Analyze</b> the suitability of rod gap, expulsion type and valve type lightning arrester.   | <b>CO3</b>      | <b>An</b>     | <b>03</b>       |
| <b>6.</b>    | Viva/Viva-Quiz: The time of viva/viva-quiz will be declared in google classroom.   | <b>CO2, CO3</b> | <b>An, Ap</b> | <b>20</b>       |