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**University Examinations 2015/2016**

THIRD YEAR FIRST SEMESTER EXAMINATION FOR DIPLOMA IN ELECTRICAL ENGINEERING

**EEE 2301: ELEMENTS OF ELECTRICAL POWER SYSTEMS II**

 **DATE: AUGUST 2016 TIME: 11/2 HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30MARKS)**

1. Define the term substation. (2 Marks)
2. State five functions of substations. (5 Marks)
3. State three types of substations based on voltage levels. (3 Marks)
4. Distinguish between metal-clad and metal enclosed switch gear. (4 Marks)
5. State four types of switchgears based on insulating medium. (4 Marks)
6. List five types of arc quenching methods used in switchgears. (5 Marks)
7. State three disadvantages of Air Circuit breakers. (3 Marks)
8. Outline four parameters used to rate a circuit breaker. (4 Marks)

**QUESTION TWO (15 MARKS)**

1. State four classifications of circuit breakers based on medium of arc extinction. (4 Marks)
2. Explain the following circuit breaker parameters:
3. Short circuit breaking current
4. Short circuit making current (6 Marks)
5. State five advantages of air circuit breaker. (5 Marks)

**QUESTION THREE (15 MARKS)**

1. Define the term switchgear. (2 Marks)
2. State three methods of operating switchgears. (3 Marks)
3. Describe the operation of oil circuit breaker switchgears. (6 Marks)
4. Distinguish between indoor and outdoor switchgears. (4 Marks)

**QUESTION FOUR (15 MARKS)**

1. State five parts/equipments of a substation. (5 Marks)
2. Highlight five items that should be checked while carrying out maintenance on substation transformer. (5 Marks)
3. Describe the following types of substations:
4. Step-up substation
5. Outdoor substation (5 Marks)