

**M. TECH.-IV (ELECTRICAL -POWER SYSTEM) (CBCS – 2015  
COURSE) : SUMMER - 2018  
SUBJECT : SELF STUDY – II : SUBSTATION DESIGN**

Day : **Tuesday**  
Date : **19/06/2018**

**S-2018-3158**

Time : **11.00 AM TO 02.00 PM**  
Max. Marks : 60

**N.B.**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.
- 4) Answers to both the sections should be written in **SEPARATE** answer book.

**SECTION – I**

**Q.1** State various bus bar arrangements. Explain single bus-bar scheme with neat sketch. Also compare it with double bus-bar scheme. **(10)**

**OR**

Give the classification of isolating switches. Draw and explain the working of two post single break isolating switch.

**Q.2** State the comparison between magnetic type voltage transformer and capacitive types voltage transformer with neat sketches. Also explain the accuracy class for voltage transformer. **(10)**

**OR**

Explain the theory and operation of current transformer with vector diagram. Also, mention various rating and their selection of current transformer.

**Q.3** Give the classification of circuit breaker. Explain the constructional features of minimum oil circuit breaker. Compare it with bulk oil circuit breaker. **(10)**

**OR**

Discuss shortly about the insulation level co-ordination of 400 kV systems. Also list the various diagnostic testing methods of ZnO. Lightning Assessor.

**SECTION – II**

**Q.4** List out different tests to be carried out in power transformer. Describe them in briefly. **(10)**

**OR**

What is meant by drying out in case of power transformer? What are the various reasons of drying out of transformer? Explain in detail

**Q.5** With the help of neat sketch explain the earthing transformer protection scheme. **(10)**

**OR**

Draw and explain the schematic of contact circuit connection of an impedance type distance relay.

**Q.6** With neat sketch explain the protection schemes used in shunt capacitor bank. **(10)**

**OR**

Derive the equation of current through the neutral when one unit in a group is completely short circuited.

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