

M. Tech.-IV (Electrical -Power System) (CBCS – 2015 Course) :
SUMMER - 2019

SUBJECT- SELF STUDY PAPER – II ELECTRICAL POWER CAPACITORS

Day: Thursday
Date: 13/06/2019

S-2019-3555

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) Answer to both the sections should be written in **SAME** Answer book.
- 4) Assume suitable data, if necessary.

SECTION - I

Q.1 Which properties of dielectric materials and metals are important while selecting them for construction of power capacitors? (10)

OR

Q.1 Define and explain: (10)

- i) Dielectric constant
- ii) Loss angle
- iii) Voltage stress
- iv) Partial discharge

With respect to power capacitors.

Q. 2 Explain mechanism of dielectric break down with suitable I - V characteristics. (10)

OR

Q. 2 Elaborate: (10)

- i) Voltage rating
- ii) KVAR rating and temperature rating of power capacitor

Q. 3 How testing of dielectric strength is carried out? Write procedure for same with suitable diagram. (10)

OR

Q. 3 Explain routine test, type test and acceptance test performed on power capacitors in capacitor manufacturing industry. (10)

SECTION - II

Q.4 Explain construction, working and materials used in any two types of capacitors used in electronics circuits. (10)

OR

Q.4 Explain need of series and shunt capacitors used in power system. (10)

Q. 5 Explain : (10)

- i) Distribution system capacitor bank
- ii) EHV shunt capacitor
- iii) Substation capacitor bank
- iv) Fixed capacitor bank
- v) Switched capacitor bank

OR

Q. 5 How capacitor affects the harmonics in transmission and distribution system. (10)

Q. 6 Explain various factors for choosing type and rating of energy storage system in EV application. (10)

OR

Q. 6 Compare ultra-capacitor with lead acid battery. (10)

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