

Roll No.

Total No. of Pages : 02

Total No. of Questions : 18

**B.Tech. (Electrical & Electronics)/(Electrical Engineering)/  
(Electronics & Electrical) (Sem.-5)**

**POWER SYSTEMS-I (APPARATUS & MODELLING)**

**Subject Code : BTEE-501-18**

**M.Code : 78309**

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTION TO CANDIDATES :**

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

**SECTION-A**

**Answer briefly :**

- 1) What do you mean by Balanced and Unbalanced faults in Power system?
- 2) Draw the equivalent circuit of a synchronous machine connected to infinite bus-bar.
- 3) Compare Conventional and non-conventional energy sources.
- 4) Why are transmission lines transposed?
- 5) Distinguish between a feeder and a distributor.
- 6) What do you understand by Skin effect?
- 7) Discuss the applications of distance protection.
- 8) What do you mean by surge impedance loading?
- 9) What do you mean by bulk power grids?
- 10) Define the voltage regulation in transmission lines.

### SECTION-B

- 11) Derive an expression to determine the voltage regulation of short transmission lines. Draw its phasor diagram also.
- 12) State the different problems associated with series compensation.
- 13) What are the causes of over voltage? Discuss over voltage protection schemes.
- 14) Find the expression for the capacitance of a single-core cable.
- 15) Discuss the evolution of power system and present scenario in power systems.

### SECTION-C

- 16) Write a note on the following :
  - a) Bewley diagrams
  - b) Synchronous and asynchronous interconnections
- 17) Discuss various types of Circuit breakers with ratings and applications.
- 18) a) Draw and explain power curve of wind turbine.  
b) Explain the concept and phenomenon of corona in power system.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**