

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2018****Subject Code:2142404****Date:22/11/2018****Subject Name:Basic Power Systems****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) What is a power generating station? **03**
 (b) List the advantages and disadvantages of Thermal power station. **04**
 (c) Draw schematic arrangement of nuclear power plant and list out its main components **07**
- Q.2** (a) Discuss disadvantage of low power factor. **03**
 (b) What is the use of power factor? Why do we need to improve it? **04**
 (c) Discuss the advantages and disadvantages of (i) pin-type insulator (ii) suspension type insulators. **07**
- OR**
- (c) Explain the Nominal π method used for the solution of medium transmission line. **07**
- Q.3** (a) Explain proximity effect in ac supply system. **03**
 (b) What do you understand by skin effect? Why it is absent in DC system? **04**
 (c) Derive the equation of an inductance of a conductor and loop inductance for single-phase two wire line. **07**
- OR**
- Q.3** (a) What do you understand by long transmission line? **03**
 (b) What is Corona effect? Which factor affecting its? **04**
 (c) List the methods for solution of medium transmission lines. Explain nominal T method. **07**
- Q.4** (a) Enlist various methods to improving string efficiency. **03**
 (b) Explain types of DC links in brief. **04**
 (c) What is transposition? Discuss the importance of transposition in transmission line. **07**
- OR**
- Q.4** (a) Explain voltage transformer earthing. **03**
 (b) What are the merits of HVDC transmission? **04**
 (c) Enlist the basic equipment used in HVDC transmission. Explain the operation of Converters in HVDC transmission system. **07**
- Q.5** (a) Draw the Bus-bar arrangements in sub-station. **03**
 (b) Define the grounding and explain solid grounding with diagram. **04**
 (c) Explain the bundled conductors in EHV transmission lines with its merits. **07**
- OR**
- Q.5** (a) Explain the Ferranti effect with necessary diagram **03**
 (b) Enlist the five equipment along with its symbols used in Sub-stations. **04**
 (c) Give the Classification of Sub-station. Explain comparison between indoor and outdoor substation. **07**
