

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – SUMMER 2013****Subject Code: 132401****Date: 29-05-2013****Subject Name: Basic Power Systems Engineering****Time: 02.30 pm - 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 power factor? What is its importance? Derive expression for most economical power factor. **07**

(b) Compare HVDC and HVAC transmission system. **07**

Q.2 (a) Describe the operating principle of circuit breaker. **07**

(b) Draw the schematic diagram of nuclear power station and list out the advantages and demerits. **07**

OR

(b) What is the difference between neutral grounding and equipment grounding? What are the advantages and disadvantages of neutral grounding? **07**

Q.3 (a) Explain hydro power plant with neat diagram. **07**

(b) What is flux linkage? Discuss the procedure with necessary equations to calculate the flux linkages of single current carrying conductor. **07**

OR

Q.3 (a) Explain thermal power plant with neat diagram. **07**

(b) Derive expression for the capacitance of single phase overhead transmission line. **07**

Q.4 (a) What is skin effect? What are its merits and demerits? Explain in detail. **07**

(b) How power factor can be improved? Discuss in detail the various methods. **07**

OR

Q.4 (a) Explain symmetrical components. **07**

(b) Write a short note on Ferranti effect. **07**

Q.5 (a) Draw a block diagram of HVDC transmission system and explain the associated equipments. **07**

(b) Discuss the role of (1) Fuse (2) Transformer and (3) Isolator in transmission and distribution system. **07**

OR

Q.5 (a) Write a detailed note on bundled conductors. **07**

(b) Discuss earthing transformer and arc suppression coil grounding. **07**
