

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (OLD) EXAMINATION – WINTER 2018****Subject Code: 182401****Date: 19/11/2018****Subject Name: Power Electronics Applications In Power System****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.

MARKS

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| Q.1 | (a) | Draw and Explain block diagram of Photovoltaic Array interconnection to Power System. | 07 |
| | (b) | Discuss on basic elements of static relays with illustration. | 07 |
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| Q.2 | (a) | Compare the following terms: 1. UPFC and IPFC 2. SVC and STATCOM | 07 |
| | (b) | Define DPF. List and Explain the generation and effect of current harmonics in power system. | 07 |
| OR | | | |
| | (b) | Explain TCR flexible transmission controller with neat diagram. | 07 |
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| Q.3 | (a) | Explain the operation of SVC. | 07 |
| | (b) | Explain the operation of STATCOM. | 07 |
| OR | | | |
| Q.3 | (a) | Write brief note on wind and small hydro connection. | 07 |
| | (b) | Discuss bipolar link in HVDC system with merits and demerits. | 07 |
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| Q.4 | (a) | Write brief note on standards related to power quality in power system. | 07 |
| | (b) | Define THD. List and Explain need for improved utility interface. | 07 |
| OR | | | |
| Q.4 | (a) | Define Power quality according to IEEE. Also categorized Power quality with IEEE 519 standard. | 07 |
| | (b) | Explain generation, standards and reduction of Electromagnetic Interference. | 07 |
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| Q.5 | (a) | Discuss on various possible HVDC configurations employed in the transmission system. | 07 |
| | (b) | Summarize the application of power electronics on the pavement of HVDC – Transmission on Indian - grid. | 07 |
| OR | | | |
| Q.5 | (a) | Explain control of HVDC converter with necessary circuit and V- I characteristics. | 07 |
| | (b) | Write technical Note on: 1. PAR 2. Differential static overcurrent relay. | 07 |
