

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII(NEW) EXAMINATION – SUMMER 2019****Subject Code:2182407****Date:17/05/2019****Subject Name:Switch Gear & Protection****Time:10:30 AM TO 01:00 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) Draw the schematic diagram of single phase sub-station. **03**
 (b) Explain trip circuit and its operation with necessary diagrams. **04**
 (c) Define RRRV. Derive the equation for RRRV_{max}. **07**
- Q.2** (a) Define fault condition and types of abnormal condition. **03**
 (b) Give advantages of SF6 circuit breaker. **04**
 (c) Explain current chopping with relevant diagram. **07**
- OR**
- Q.3** (c) Draw and explain Air Break circuit breaker. **07**
 (a) Explain the following term: (i) Switch-gear, (ii) Lightning arrester and (iii) Earthing switch **03**
 (b) Compare Static versus Electromagnetic relays. **04**
 (c) Explain Percentage Differential Protection of Transformer with necessary diagrams. **07**
- OR**
- Q.3** (a) Explain characteristics of over current protection relays. **03**
 (b) Compare Induction Disc and Induction Cup relays in tabular form. **04**
 (c) Explain the construction and working principle of Buchholz relay. **07**
- Q.4** (a) Compare Vacuum circuit breaker and Oil circuit breaker in brief. **03**
 (b) Explain Inter-turn fault protection scheme for generator. **04**
 (c) Write a short note on Directional relay. **07**
- OR**
- Q.4** (a) Explain microprocessor based relay in brief. **03**
 (b) Explain the protection of generator against stator and rotor faults. **04**
 (c) Explain Distance relay with its different characteristics. **07**
- Q.5** (a) Explain Translay relay in brief. **03**
 (b) Explain attracted armature relay. **04**
 (c) Explain the construction and working principle of Zinc Oxide lightning arrester. **07**
- OR**
- Q.5** (a) Give difference between bushing and isolator. **03**
 (b) What is the need of Neutral grounding? Explain any one method of Neutral Grounding. **04**
 (c) Explain the carrier current based transmission line protection scheme with block diagram. **07**
