

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VI (OLD) - EXAMINATION – SUMMER 2017****Subject Code: 160803****Date: 27/04/2017****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) Explain comparison between Static and Electromagnetic Relay. **07**  
(b) Write a short note on Instrument Transformers. **07**
- Q.2** (a) Explain Construction, Working Principle, Merits and Demerits of vacuum **07**  
Circuit Breaker.  
(b) Draw the characteristic of IDMT relay and explain term TSM and PSM. **07**
- OR**
- (b) Explain the properties of SF<sub>6</sub> Gas. **07**
- Q.3** (a) Explain Buchholtz relay protection. **07**  
(b) Explain advantages and disadvantage of HRC fuse. **07**
- OR**
- Q.3** (a) Explain impedance, Reactance and Mho characteristics of distance relay. **07**  
(b) Explain the need of fuse in protection. Explain the current time characteristics **07**  
of fuse.
- Q.4** (a) Explain the effects of ungrounded neutral on power system performance. **07**  
Explain any one method of neutral grounding.  
(b) Derive the necessary equation of Restriking Voltage and RRRV for Circuit **07**  
Breaker.
- OR**
- Q.4** (a) Explain the causes of over-voltages in Power System. Explain the working of **07**  
Zinc Oxide Lightning Arrester.  
(b) Explain minimum oil circuit breaker, with its advantages and disadvantages. **07**
- Q.5** (a) Explain three zone protection schemes of lines. **07**  
(b) Why Neutral grounding is required? Explain any two methods of Neutral **07**  
Grounding.
- OR**
- Q.5** (a) Explain the construction and torque equation of induction cup type relay. **07**  
(b) Derive the equation for Ratio and Phase angle error of Current Transformer. **07**

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