



**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-VI (OLD) - EXAMINATION – SUMMER 2018**

**Subject Code:162403**

**Date:28/04/2018**

**Subject Name:Switch Gear & Fault Analysis**

**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.
4. Notations used have usual meaning.

- Q.1** (a) Define 'fault' in power system. Discuss the types of faults and causes of fault. How the faults can be minimized? **07**
- (b) Discuss the necessity of protection system and explain fault clearing process. **07**
- Q.2** (a) Explain the following term: **07**
- (1) Isolator
  - (2) Lightning Arrester
  - (3) Recovery voltage
- (b) Explain the principle of circulating current differential protection. Discuss the difficulties with it. **07**
- OR**
- (b) Write a brief note on IDMT relay. **07**
- Q.3** (a) Discuss Air blast circuit breaker with neat diagram. **07**
- (b) Explain construction and working of electromagnetic induction disc type relay. Also discuss Plug setting and Time setting in induction disc relay. **07**
- OR**
- Q.3** (a) Explain the effect and derive the expression of current due to sudden short circuit of R-L series circuit. **07**
- (b) Explain the construction of vacuum circuit breaker with neat diagram. **07**
- Q.4** (a) Discuss the construction and working of HRC fuse with its advantages and disadvantages. **07**
- (b) Explain the double line to ground fault on an unloaded generator. **07**
- OR**
- Q.4** (a) Explain the attracted armature relay with necessary diagram. **07**
- (b) Discuss SF<sub>6</sub> - circuit breaker with necessary diagram. **07**
- Q.5** (a) Explain Auto-reclosure. **07**
- (b) Explain the principle of distance protection by R-X diagram and explain the operating characteristics of an impedance relay. **07**
- OR**
- Q.5** (a) Explain Resistance Switching and Current Chopping with neat sketch. **07**
- (b) Write a short note on micro-controller based digital relay. **07**

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