Name COLLEG

Reg. No.

## EIGHTH SEMESTER B.TECH. (ENGINEERING) [2014 SCHEME] DEGREE EXAMINATION, APRIL 2018

Electrical and Electronics Engineering

EE 14 803—POWER SYSTEM PROTECTION

Time: Three Hours

Maximum: 100 Marks

## Part A

- I. Answer any eight questions out of ten:
  - 1 Explain the principle of operation of impedance Relay.
  - 2 Working Principle of Inductional type Directional overcurrent relay.
  - 3 What are the techniques used to realize various time-current characteristics using electromechanical relays. Also, compare the time-current characteristics of inverse, very inverse and extremely inverse over current relays. Discuss their applications.
  - 4 Explain the concept of Current Chopping in a circuit breaker.
  - 5 Derive the expression for restriking voltage and RRRV.
  - 6 Why SF6 is used in circuit breakers?
  - 7 What are the problems arising in differential protection in power transformer and how are they overcome?
  - 8 Brief the problems in bus zone differential protection?
  - 9 Explain any one testing schemes of circuit breaker.
  - 10 Brief about the Electronic Soft Start for 3-Phase Induction Motor.

 $(8 \times 5 = 40 \text{ marks})$ 

## Part B

- II. Answer all questions:
  - 11 How will you synthesize mho relay using static phase comparator?

Or

- 12 Explain about numerical overcurrent relay and numerical protection of transformers
- 13 Explain in detail about rating of circuit breakers (N/D-15)

Or

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  - 14 Explain the arc phenomena and interruption.

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15 Explain harmonic restrained differential relay used for transformer protection.

Or

- 16 Draw the protective zone diagram for a sample power system network and explain its rules.
- 17 Explain in what way distance protection is superior to over current protection for the protection of transmission lines.

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Or

18 Explain the construction and working of SF6 circuit breaker.

 $(4 \times 15 = 60 \text{ marks})$ 

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(8 × 6 = 40 marks):

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