

Unit 7 - Week 6

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Assignment 6

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-10-28, 23:59 IST.

- 1) Which relay is used to detect and protect internal fault in a transformer? 1 point
- Thermal relay
 Buchholz relay
 Directional relay
 Distance relay

No, the answer is incorrect.
Score: 0

Accepted Answers:
Buchholz relay

- 2) Problems associated with differential protection is/are 1 point
- Magnetizing inrush current
 Mismatching characteristics of CTs
 Change of ratio as a result of tapping
 all of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
all of the above

- 3) To prevent mal-operation of differentially connected relay while energizing a transformer, the relay restraining coil is biased with 1 point
- Second harmonic current
 Third harmonic current
 Fifth harmonic current
 Seventh harmonic current

No, the answer is incorrect.
Score: 0

Accepted Answers:
Second harmonic current

- 4) A $3-\phi$, 220 V/11000 V transformer is connected in star/delta. It has a CT ratio of 600/5 A on 220 V side. What would be the CT ratio on 11000 V side? 2 points
- 12 : 5 A
 12 : $5\sqrt{3}$ A
 12 : $\sqrt{3}$ A
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
12 : $5\sqrt{3}$ A

- 5) A 200 MW, 13.8 kV, 0.9 PF, 50 Hz, three-phase, Y-connected generator is protected by an earth-fault relay. The relay is set to operate at 10%. The CT ratio is 10,000/1 A. A resistor is used in the neutral circuit of the generator to limit the earth-fault current to 50% of the normal load current. Determine the value of the resistor and the percentage of stator winding unprotected. 2 points
- 1.25 Ω and 15.34%
 2.47 Ω and 34.68%
 1.71 Ω and 21.46%
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
1.71 Ω and 21.46%

- 6) In a biased differential relay, the bias is defined as a ratio of 2 points
- Number of turns of restraining and operating coil
 Operating coil current and restraining coil current
 Fault current and operating coil current
 Fault current and restraining coil current

No, the answer is incorrect.
Score: 0

Accepted Answers:
Operating coil current and restraining coil current

- 7) In differential protection scheme, a stabilizing resistance is required to 1 point
- Block the relay
 Increase the relay sensitivity
 Reduce the effect of non-identical CTs
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Reduce the effect of non-identical CTs

- 8) A three-phase, 11 kV, 120 MW, 0.85 lagging power factor generator is protected by a circulating current differential protection scheme. The CT ratio is 7500/5 A. The CT secondary resistance is 1.5 Ω and total lead resistance is 1 Ω . The relay rated current is 5 A and its setting range is 5 – 20% of 5 A. Burden of the relay is 1 VA. Calculate the value of stabilizing resistance (R_{stab}) for an external fault having a magnitude of 10 pu. The relay is set at 10% of 5 A. 2 points
- 243 Ω
 81 Ω
 162 Ω
 None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
81 Ω

- 9) The details of a 2500 HP, three-phase, 50 Hz induction motor are as follows: 2 points
Rated output = 2500 HP, Power factor = 0.8 lagging, Rated voltage = 11000 V, Continuous overload = 120% of the rated current, CT ratio = 200/1 A, Setting range of thermal relay = 70–130% of 1 A in steps of 5%. The setting of a thermal overload relay is
- 70%
 75%
 80%
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
70%

- 10) The setting of NPS relay is decided on the basis of 1 point
- The ratio of negative sequence of impedance to positive sequence of impedance
 The ratio of negative sequence of current to positive sequence of current
 The ratio of negative sequence of voltage to positive sequence of voltage
 All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
The ratio of negative sequence of impedance to positive sequence of impedance