

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (OLD) EXAMINATION – WINTER 2023****Subject Code:2170908****Date:14-12-2023****Subject Name: Switch Gear and 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.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

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| Q.1 | (a) What are the causes and effects of faults? | 03 |
| | (b) Explain primary and back-up protection. | 04 |
| | (c) Explain induction disc type electromagnetic relay. | 07 |
| Q.2 | (a) What are the desirable qualities of protective relaying? | 03 |
| | (b) Write and explain Relay Pick up, Reset, Pick up/ Drop off Ratio. | 04 |
| | (c) Write a short note on Fuse and Thermal over current relay. | 07 |
| OR | | |
| | (c) How to measure the magnetization curve of CT. Why magnetization curve is important in selection of CT? | 07 |
| Q.3 | (a) Explain earth leakage protection. | 03 |
| | (b) Write and explain drawback of simple differential relay. | 04 |
| | (c) Write short note on percentage differential protection of Delta/Star power transformer. | 07 |
| OR | | |
| Q.3 | (a) Draw the block diagram of numerical relay. | 03 |
| | (b) Explain inrush phenomenon in transformer. | 04 |
| | (c) Write short note on gas operated relay. | 07 |
| Q.4 | (a) Compare Reactance relay with Mho relay. | 03 |
| | (b) Explain 3-stepped distance protection. | 04 |
| | (c) Write short note on air blast circuit breaker. | 07 |
| OR | | |
| Q.4 | (a) Draw the block diagram for carrier-aided protection of transmission line. | 03 |
| | (b) Compare protective CT with measuring CT. | 04 |
| | (c) Explain phase comparison relaying (unit scheme). | 07 |
| Q.5 | (a) Describe reverse power protection for generator. | 03 |
| | (b) State various faults and abnormal operation condition for induction motor. Explain Single phasing. | 04 |
| | (c) Explain current chopping duties of switchgear. | 07 |
| OR | | |
| Q.5 | (a) Compare air break circuit breaker, with oil circuit breaker. | 03 |
| | (b) Explain transient Characteristics of re-striking voltage. | 04 |
| | (c) Explain construction and working of SF6 circuit breaker. | 07 |
