This document is a part of Main Course File	Document No.: CFM – 8

SARDAR VALLABHBHAI PATEL EDUCATION SOCIETY
MANAGED

N. G. PATEL POLYTECHNIC

ELECTRICAL ENGINEERING DEPARTMENT

ASSIGNMENTS

Course Name (With Code):SWITCHGEAR AND PROTECTION (4350901)

Semester / Year: Fifth/Third

Assignment Number: 1

Assignment CO Number: 4350901.1

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 3 Marks**
1	Write the various use of CT and PT in protective system.
2	Draw block diagram of basic arrangement of protective system.
3	Explain PSM and TSM.
4	Give advantages and disadvantages of static relay.
5	Give classification of relay based on operating principle.
Part – B	**Questions carrying 4 Marks**
1	Explain necessity of back up protection and give its types.
2	Explain electromagnetic attraction type relay.
3	State the desirable characteristics of protective system
4	Give the difference between instrument transformer and protective transformer.
5	Give difference between CT and PT.
Part – C	**Questions carrying 7 Marks**
1	Explain Construction and working of watt hour meter type induction disc relay.
2	Explain Trip Circuit Supervision.

Prepared By: Nikunj G.Mistry	**Signature of Head of Department**

This document is a part of Main Course File	Document No.: CFM – 8

SARDAR VALLABHBHAI PATEL EDUCATION SOCIETY
MANAGED

N. G. PATEL POLYTECHNIC

ELECTRICAL ENGINEERING DEPARTMENT

ASSIGNMENTS

Course Name (With Code):SWITCHGEAR AND PROTECTION (4350901)

Semester / Year: Fifth/Third

Assignment Number: 2

Assignment CO Number: 4350901.2

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 3 Marks**
1	Compare unit type and non unit type protection for lines.
2	Explain non-directional time graded over current protection system.
3	Explain travelling wave fault relay.
4	Explain circulating current protection for transmission line.
5	Explain directional time graded protection of parallel feeder.
Part – B	**Questions carrying 4 Marks**
1	Explain Negative phase sequence relay.
2	Explain carrier current protection scheme for transmission lines.
3	Explain frame leakage protection for busbar
4	Explain Components of SCADA system.
Part – C	**Questions carrying 7 Marks**
1	Explain working of impedance type distance relay with diagram, also draw its characteristic.
2	Explain working of reactance type distance relay with diagram and its characteristic.

Prepared By: Nikunj.G.Mistry	**Signature of Head of Department**

This document is a part of Main Course File	Document No.: CFM – 8

SARDAR VALLABHBHAI PATEL EDUCATION SOCIETY
MANAGED

N. G. PATEL POLYTECHNIC

ELECTRICAL ENGINEERING DEPARTMENT

ASSIGNMENTS

Course Name (With Code):SWITCHGEAR AND PROTECTION (4350901)

Semester / Year: Fifth/Third

Assignment Number: 3

Assignment CO Number: 4350901.3

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 3 Marks**
1	State four abnormalities that can occur in power transformer.
2	Explain differential protection for power transformer.
3	Explain working with neat diagram of Buchholz relay.
4	Explain Harmonic restrainer.
5	Explain difficulties in using Merz- price protection for power transformer.
Part – B	**Questions carrying 4 Marks**
1	Explain restricted earth fault protection for power transformer
2	Explain core balance type earth fault protection.
3	Explain Features of Numerical relay and its advantages
4	State the advantages Numerical relay .
5	Explain Nitrogen Injection Fire Protection system for power transformer.
Part – C	**Questions carrying 7 Marks**
1	Explain percentage biased differential scheme for Δ-Y transformer showing connections of CT.
2	Explain transformer inrush current negative effect on the power systems and methods to control the current.

Prepared By: Nikunj G.Mistry	**Signature of Head of Department**

This document is a part of Main Course File	Document No.: CFM – 8

SARDAR VALLABHBHAI PATEL EDUCATION SOCIETY
MANAGED

N. G. PATEL POLYTECHNIC

ELECTRICAL ENGINEERING DEPARTMENT

ASSIGNMENTS

Course Name (With Code):SWITCHGEAR AND PROTECTION (4350901)

Semester / Year: Fifth/Third

Assignment Number: 4

Assignment CO Number: 4350901.4

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 3 Marks**
1	State four abnormalities that can occur in three phase induction motor.
2	State four abnormalities that can occur in three phase alternator
3	Explain restricted earth fault protection for three phase alternator.
4	Explain backup over current protection.
Part – B	**Questions carrying 4 Marks**
1	Explain in detail various types of protection given to three phase induction motor.
2	Explain circuit of percentage biased differential protection system for the protection of alternator.
3	Explain filed failure protection of alternator.
4	Explain negative phase sequence protection of synchronous generator.
Part – C	**Questions carrying 7 Marks**
1	Explain circuit of percentage biased differential protection system for the protection of alternator.
2	Explain abnormalities and faults occurring in alternator & their effect in detail.

Prepared By: Nikunj G.Mistry	**Signature of Head of Department**

This document is a part of Main Course File	Document No.: CFM – 8

SARDAR VALLABHBHAI PATEL EDUCATION SOCIETY
MANAGED

N. G. PATEL POLYTECHNIC

ELECTRICAL ENGINEERING DEPARTMENT

ASSIGNMENTS

Course Name (With Code):SWITCHGEAR AND PROTECTION (4350901)

Semester / Year: Fifth/Third

Assignment Number: 5

Assignment CO Number: 4350901.5

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 3 Marks**
1	Give difference between Circuit breaker and Isolator.
2	What are the reasons of arc formation? Explain how arc persists.
3	Explain high resistance interruption method of quenching arc in circuit breaker.
4	Explain low resistance arc interruption method in circuit breaker.
5	Give the ratings (specifications) of circuit breaker.
Part – B	**Questions carrying 4 Marks**
1	Explain terms. (i) Recovery voltage (ii) RRRV (iii) Breaking capacity (iv) Making capacity(v) Auto recloser.
2	Explain working of Vacuum circuit breaker.
3	Explain current zero arc interruption.
4	Explain working of SF6 circuit breaker.
5	Explain working of minimum oil circuit breaker.
Part – C	**Questions carrying 7 Marks**
1	Describe Air Blast Circuit Breaker and state its advantages. Explain axial blast ABCB with neat sketch.
2	Explain any three isolators with construction.
3	State the routine test performed on circuit breaker.

Prepared By: Nikunj G.Mistry	Signature of Head of Department

This document is a part of Main Course File	Document No.: CFM – 8

SARDAR VALLABHBHAI PATEL EDUCATION SOCIETY
MANAGED

N. G. PATEL POLYTECHNIC

ELECTRICAL ENGINEERING DEPARTMENT

ASSIGNMENTS

Course Name (With Code):SWITCHGEAR AND PROTECTION (4350901)

Semester / Year: Fifth/Third

Assignment Number: 6

Assignment CO Number: 4350901.6

Sr. No.	Questions related to Course Outcomes
Part – A	**Questions carrying 3 Marks**
1	List various types of surge arrestors.
2	Write short note on protection against travelling waves.
3	Explain construction and working of protector tube.
4	Explain the term protection angle with reference to earth wire.
5	List various types of surge arrestors.
Part – B	**Questions carrying 4 Marks**
1	State the causes of over voltage in the power system.
2	What is over voltage and Explain working of surge arrestor?
3	Explain insulation coordination.
4	Explain "Horn gap" type lightening arrester with neat diagram. Also state its advantages and disadvantages.
Part – C	**Questions carrying 7 Marks**
1	State the different types of lightning arresters .explain any one in detail.
2	State the external and internal causes of over voltage. Explain its ill effect on the power system.

Prepared By: Nikunj G.Mistry	**Signature of Head of Department**