SAMPLE MODEL QUESTION PAPERS

2-mark questions

What do you understand by switchgear?

Name the different types of bus-bar arrangements.

What do you understand by a short-circuit? Discuss the possible causes of short-circuit in the power system.

Explain the harmful effects of short-circuit fault on the power system.

What is the importance of short-circuit calculations?

Discuss the possible faults on overhead lines.

What is the importance of base kVA in short-circuit calculations?

What is a circuit breaker?

What is a fuse?

Why do we prefer silver as a fuse element?

What is protective relay? Explain its function in an electrical system.

Discuss the fundamental requirements of protective relaying

Define pick up value of a relay?

What do you mean by PSM?

What are the requirements of protection of lines?

What is a voltage surge?

Discuss the causes of over voltages.

What is lightning?

What is a surge diverter?

Describe the various types of lightning stroke.

What are the harmful effects of lightning?

5-mark questions

Discuss the different types of bus-bar arrangements.

What is the difference between (i) a switch and circuit breaker (ii) a fuse and circuit breaker ?

Explain the harmful effects of short-circuit fault on the power system.

What do you understand by percentage reactance? Why do we prefer to express the reactance of various elements in percentage values for short-circuit calculations?

Why do we use reactors in the power system? Discuss their advantages.

What is a circuit breaker? Describe its operating principle.

Discuss the arc phenomenon in a circuit breaker.

Define and explain the following terms as applied to circuit breakers: (i) Arc voltage (ii) Restriking voltage (iii) Recovery voltage

Discuss the advantages and disadvantages of oil circuit breakers.

Explain the difference between bulk oil circuit breakers and low-oil circuit breakers.

Explain briefly the following types of air-blast circuit breakers: (i) Axial-blast type (ii) Cross-blast type

What are the important components common to most of circuit breakers? Discuss each component briefly.

Write a short note on the rate of re-striking voltage indicating its importance in the arc extinction.

What is a fuse? Discuss the advantages and disadvantages of a fuse.

Define and explain the following terms: (i) fusing current (ii) cut off current (iii) operating time (iv) breaking capacity

What is protective relay? Explain its function in an electrical system.

Derive the equation for torque developed in an induction relay.

Discuss the fundamental requirements of protective relaying.

Write a brief note on relay timing.

Sketch a typical time/P.S.M. curve.

Describe the various steps for calculating the actual relay operating time.

Write a detailed note on differential relays.

Describe with a neat diagram the balanced earth protection for small-size generators.

How will you protect an alternator from turn-to-turn fault on the same phase winding?

What factors cause difficulty in applying circulating current principle to a power transformer?

Discuss the important faults on an alternator.

What is the importance of bus-bar protection?

Discuss the time-graded overcurrent protection for (i) Radial feeders (ii) Parallel feeders (iii) Ring main system

What is a voltage surge? Draw a typical lightning voltage surge.

Discuss the causes of over voltages.

What is lightning? Describe the mechanism of lightning discharge.

How do earthing screen and ground wires provide protection against direct lightning strokes?

What is a surge diverter? What is the basic principle of operation of a surge diverter?

What is the advantage of using static relay?

What is a surge absorber? Write a short note on Ferranti surge absorber.

10-mark questions

Explain the various methods of accommodating high-voltage switchgear.

Explain the various methods of connecting short-circuit current limiting reactors in the power system.

Explain the various methods of arc extinction in a circuit breaker. Describe briefly the action of an oil circuit breaker. How does oil help in arc extinction?

Explain with neat sketches the construction and working of the following circuit breakers: (i) Plain explosion pot (ii) Cross jet explosion pot (iii) Self-compensated explosion pot

Discuss the constructional details and operation of a typical low-oil circuit breaker? What are its relative merits and demerits?

Discuss the principle of operation of an air-blast circuit breaker. What are the advantages and disadvantages of using air as the arc quenching medium?

Discuss the phenomenon of (i) Current chopping (ii) Capacitive current breaking

Write short notes on the following: (i) Resistance switching (ii) Circuit breaker ratings (iii) Circuit interruption problems

Write short notes on the following: (i) Semi-enclosed rewireable fuse (ii) H.R.C. cartridge fuse (iii) Difference between a fuse and circuit breaker

Describe briefly some important types of electromagnetic attraction relays.

Define and explain the following terms as applied to protective relaying: (i) Pick-up value (ii) Current setting (iii) Plug-setting multiplier (iv) Time-setting multiplier

Write a brief note on relay timing.

Describe the construction and principle of operation of an induction type directional overcurrent relay.

Explain with a neat diagram the application of Merz-Price circulating current principle for the protection of alternator.

Describe the construction and working of a Buchholz relay.

Describe the Merz-Price circulating current system for the protection of transformers.

Write short notes on the following: (i) Earth-fault protection for alternator (ii) Combined leakage and overload protection for transformers (iii) Earth-fault protection for transformers

Write short-notes on the following: (i) Fault-bus protection (ii) Merz-Price voltage balance system for protection of feeders

Write short notes on the following surge diverters: (i) Rod gap diverter (ii) Horn gap diverter (iii) Expulsion type diverter (iv) Multigap diverter

Discuss the construction, principle and working of a valve type arrester.