(Time: 3 Hours) **[Total marks: 80]**

N.B:- (1) **Question 1 is compulsory**

(2) Solve any **three** questions from remaining **five** questions.

(3) Figures to the right indicate **full** marks.

Q 1.	Answer the following questions. a) Explain the importance of different types of instrument transformers b) What is the role of isolator in power system? Explain. c) What are the difficulties associated with differential protection d) Explain primary, back up and remote backup protection of relay.	**20**
Q 2 a)	What is working principle of distance relays. Differentiate between different types of distance relays.	**10**
Q 2 b)	Explain with neat diagram construction and working principle of MOCB.	**10**
Q 3 a)	Explain construction & working of Air circuit breaker.	**10**
Q 3 b)	Name the different types of fault that occur in transformer. Explain bucholz relay for protection of transformer.	**10**
Q 4 a)	Explain with neat construction any one type of Induction relay.	**10**
Q 4 b)	Explain desirable qualities of protection scheme required for efficient operation	**10**
Q 5 a)	What are the different types of fault that occur in Induction motor. Explain motor protection against single phasing.	**10**
Q 5 b)	Explain advantages of static relay over electromagnetic relays.	**10**
Q 6 a)	Discuss various properties of SF6 gas that make it suitable for arc quenching and explain SF6 CB in detail with suitable diagram.	**10**
Q 6 b)	Explain REF protection for alternator. How 100% winding is protected in an alternator.	**10**
