

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

M.E. DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Second Semester

Power System Engineering

PS4201 - Advanced Power System Protection

Regulations - 2021

Duration : 3 Hrs

Maximum : 100 Marks

PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Define sampling theorem.	RE	1	2
2.	Infer digital filtering.	UN	1	2
3.	Why distance protection is needed for transmission line?	RE	2	2
4.	Interpret amplitude comparison relaying.	UN	2	2
5.	Why does a generator need to be tripped in case of loss of excitation?	RE	3	2
6.	Summarize the phenomenon of inrush in transformer.	UN	3	2
7.	Explain the principle of directional multi zone distance relay.	UN	4	2
8.	List the applications of computer graphics.	RE	4	2
9.	Classify faults.	UN	5	2
10.	What is multiphase system?	RE	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Construct a neat diagram and explain the principle and operation of numerical relay.	AP	1	13
	Or			
	b Apply the least error squared technique for numerical protection and explain in detail.	AP	1	13
12.	a Explain with neat diagram, the protection scheme for transmission lines.	UN	2	13
	Or			
	b Demonstrate the operation of relaying scheme using amplitude comparison.	UN	2	13
13.	a Assume the different abnormal operating conditions of synchronous generator and explain its protection against such conditions.	AN	3	13
	Or			
	b Inspect and explain how the digital protection of transformer is made with neat diagram.	AN	3	13

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| 14. | a | Build a neat diagram and explain directional instantaneous IDMT over current relay in detail. | AP | 4 | 13 |
| | | Or | | | |
| | b | Develop a brief note on integrated operation of national power system. | AP | 4 | 13 |
| 15. | a | What is short circuit studies? Explain in detail about the development of algorithm for SC studies. | RE | 5 | 13 |
| | | Or | | | |
| | b | Recall about ultra high speed protective relays for high voltage long transmission line. | RE | 5 | 13 |

*PART – C (Marks 1*15 = 15)*

<i>Q.No</i>		<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	Analyze and explain the digital protection of EHV/UHV transmission line based based upon traveling wave phenomenon.	AN	2	15
		Or			
	b	Examine and describe the concept of coordination of distance relays.	AN	4	15