BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION MO/2024)

CLASS: BTECH **SEMESTER : VII/ADD**
BRANCH: EEE **SESSION : MO/2024**

SUBJECT: EE401 SWITCHGEAR AND PROTECTION

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Define the following terms: I) Restriking Voltage II) Recovery Voltage	[2]	2	II
Q.1(b)	Draw the layout of the protection system and explain the function of various components.	[3]	1	II
Q.2(a)	Explain the concept of 'current chopping' and describe the conditions that lead to its occurrence	[2]	2	II
Q.2(b)	In a 220kV system, the reactance and capacitance up to the location of circuit breaker is 8 ohm and 0.025 micro F. A resistance of 600 ohm is connected across the circuit breaker contacts. Determine the following: a) Natural frequency of oscillation b) Damped frequency of oscillation c) Critical value of resistance which will give no transient oscillations.	[3]	2	IV
Q.3(a)	Define the breaking capacity and making capacity for a circuit breaker.	[2]	2	II
Q.3(b)	With the help of a neat sketch, explain the working of puffer type SF6 circuit breaker.	[3]	1	III
Q.4(a)	Classify various types of relays used for the protection in power system.	[2]	2	II
Q.4(b)	Determine the torque equation for electro-magnetic induction disc type relays.	[3]	2	IV
Q.5(a)	Explain the merits and demerits of static relays.	[2]	4	I
Q.5(b)	Discuss the operating principle of rectifier bridge type amplitude comparator.	[3]	4	III

::::::18/09/2024::::::M