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

CLASS: BE **SEMESTER: VII**
BRANCH: EEE **SESSION : MO/2018**

SUBJECT : EE7203 SWITCHGEAR AND PROTECTION

TIME: 1.5 HOURS **FULL MARKS: 25**

INSTRUCTIONS:
1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.

Q1 (a) Briefly explain the methods used for high resistance arc interruption. [2]
(b) Discuss the problem associated with interruption of no load transformer current. [3]

Q2 (a) Discuss the suitability of SF6 as an arc quenching medium. Why it is called an electro negative gas? [2]
(b) Explain with the help of neat sketch the function of cross blast circuit breaker. [3]

Q3 (a) What is discrimination of a protective relay. How it is obtained for non unit system of protection. [2]
(b) Explain the working of % differential relay. What is the advantage of restraining coil. [3]

Q4 (a) Discuss time graded overcurrent protective scheme for protection of radial feeder. [2]
(b) An IDMT type overcurrent relay is used to protect a feeder through 500/1 A CT. The relay has a PS of 125% and TMS is 0.3. Find the time of operation of the said relay if a fault current of 5000A flow through the feeder. Make use of the following characteristic. [3]

PSM	2	3	5	8	10	15
Time for unity TMS	10	6	4.5	3.2	3	2.5

Q5 (a) Explain the effect of power swings on the performance of distance relays. [2]
(b) Draw and explain the circuit connections of three reactance units used at a particular location for three zones of protection. [3]

Q6 (a) Explain the time distance characteristics of three distance relaying units used for 1,11and111 zone of protection. [2]
(b) Discuss how reactance relay is realized. Explain its characteristic on R-x diagram. [3]

:::: 10/09/2018 M ::::::