CS/M.TECH (EE)/SEM-2/MEE-202/09

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Tir	me : 3 Hours]													[Ful	l M	arks	s : 70
IN	STRUCTIONS TO THE CANDIDATES																	
1.	This Booklet is a Question-cum-Answer E concerned subject commence from Page N				Γhe	Boo	okle	et co	onsi	sts	of 3 :	2 pa	ges	. Tł	ie qi	ıesti	ons	of this
2.	You have to answer the questions in the the paper.	sp	pace	e pı	ovio	ded	m	arke	ed'.	Ansv	ver	She	et'. `	Wri	te o	n bo	th si	des o
3.	Fill in your Roll No. in the box provided	l a	ıs ir	ı yo	ur A	\dn	it (Caro	d be	fore	ans	wer	ing t	the	que	stion	s.	

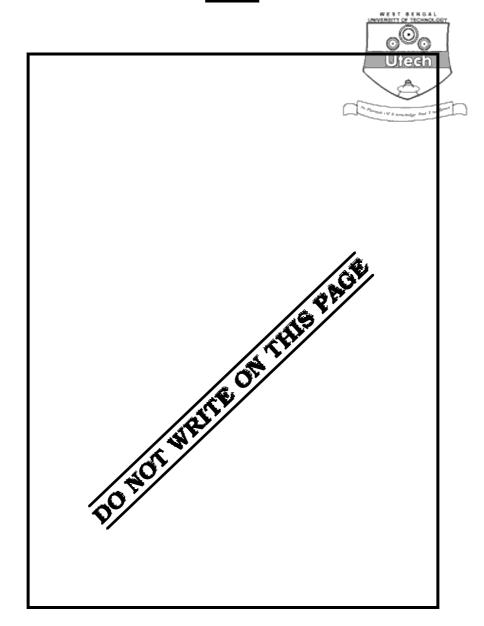
- 4. Read the instructions given inside carefully before answering.
- 5. You should not forget to write the corresponding question numbers while answering.
- 6. Do not write your name or put any special mark in the booklet that may disclose your identity, which will render you liable to disqualification. Any candidate found copying will be subject to Disciplinary Action under the relevant rules.
- 7. Use of Mobile Phone and Programmable Calculator is totally prohibited in the examination hall.
- 8. You should return the booklet to the invigilator at the end of the examination and should not take any page of this booklet with you outside the examination hall, which will lead to disqualification.
- 9. Rough work, if necessary is to be done in this booklet only and cross it through.

No additional sheets are to be used and no loose paper will be provided

FOR OFFICE USE / EVALUATION ONLY Marks Obtained Question Total Examiner's Number Marks Signature Marks Obtained

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40004 (07/07)





CS/M.TECH (EE)/SEM-2/MEE-202/09 PROTECTION OF POWER SYSTEM AND APPARATUS SEMESTER - 2

Time: 3 Hours]

Full Marks: 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Answer any *five* of the following.

 $5 \times 14 =$

- a) Explain in the light of the generalized theory, the complex plane characteristics obtained by a 2-input amplitude comparator.
 b) Explain the duality between a 2-input amplitude comparator and 2-input 90° phase comparator.
 a) State the working principle of a multi-input coincidence comparator.
- 2. a) State the working principle of a multi-input coincidence comparator.
 - b) How is block average type 2-input 90° comparator designed?
- 3. How does power swing affect the operation of a distance relay? What is the remedial measure against it?
- 4. a) How is a Mho characteristic of distance relay designed with the help of a 90° phase comparator?
 - b) Design a quadrilateral characteristic of distance relay by asymmetric phase comparators.
- 5. a) Discuss briefly the advantages of Digital Relay over its A.C counterpart. 7
 - b) With necessary schematic diagrams discuss the function of Measurement sub-unit and Evaluation sub-unit of Digital Protection scheme.

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- 6. Develop an algorithm for finding out R & L (Resistance & Inductance) of a transmission line. 14
- Discuss the construction, operating principle of vacuum circuit breaker. 7. 7
 - For a 132 kV system, the reactance and capacitance up to the location of the b) circuit breaker is 3Ω and $0{\cdot}015~\mu\text{F}$ respectively. Calculate the following :
 - The frequency of transient oscillation. i)
 - The maximum value of restriking voltage across the contacts of the circuit ii) breaker.
 - The maximum value of RRRY. iii)

7

Write short notes on the following: 8.

- SF 6 . Circuit Breaker. a)
- First Derivative method of digital protection. b)

END