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M.Tech. (EE) (2018 Batch) (Sem.–2)
DIGITAL PROTECTION OF POWER SYSTEM
Subject Code : MTEE-202-18
M.Code : 76101

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :
1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWELVE marks.

Q1. (a) Explain the types of comparators used for static relaying and its duality for different applications.

(b) Explain the static Reactance Relay using phase comparator for three zone distance protection scheme.

Q2. Explain any one finite difference method with respect to power system application.

Q3. (a) Explain the role of signal conditioner in a data acquisition system. Also explain the functions of various components of the signal conditioner.

(b) Find the maximum frequency that can be sampled without using hold circuit for a DSP system with the following specifications: Conversion time of ADC = 5 μs and number of bits in the ADC = 16

Q4. Find the Fourier series expansion up to second harmonic from the following data :

x :	0	$\pi/3$	$2\pi/3$	π	$4\pi/3$	$5\pi/3$	2π
$f(x)$:	10	12	15	20	17	11	10

Q5. Explain the Mann-Morrison technique of estimating the rms value and phase angle of a signal. State the underlying assumptions.

Q6. Explain the relation between Least Square Error and Pseudo-Inverse.

Q7. Explain half cycle data window DFT algorithm. Explain Traveling Wave based Techniques.

Q8. Explain Digital Differential Protection of Transformers using harmonic filtering algorithms based restraint conditions.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.