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**M.Tech. (Electrical Power System) (2018 Batch) (Sem.-2)****DIGITAL PROTECTION OF POWER SYSTEM****Subject Code : EEPS-201-18****M.Code : 76081****Time : 3 Hrs.****Max. Marks : 60****INSTRUCTIONS TO CANDIDATES :**

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWELVE marks.

1. a) What are the advantages of using digital techniques in power system protection? 6  
b) What is the use of Non-Recursive digital filter in digital protection system? 6
2. a) Explain typical model of A/D converter with suitable block diagram. 6  
b) Define interpolation and curve fitting. Explain backward, central and forward difference interpolation. 6
3. a) Describe Walsh function in detail with suitable example. 4  
b) Draw and explain the block diagram for :  
i) Numerical overcurrent relay  
ii) Numerical differential protection 8
4. a) Explain Fourier algorithm with sub cycle data window. 6  
b) Write the flow chart for simple relay program. 6
5. a) Explain Mann-Morrison technique for numerical relaying algorithms. 6  
b) List the benefits and limitations of a fuse protection over relay-based protection. Be precise. 6



6. a) Explain the following :
- i) Signal aliasing
  - ii) Sample and hold circuit
  - iii) Sampling theorem
  - iv) Least square method 12
7. a) Explain the distance protection algorithm based on travelling waves. 8
- b) How sampling is done for digital power system protection? Draw the spectrum of a sampled signal. 4
8. a) Why scaling of voltage signals for input to digital relay is necessary? Explain how it can be achieved by using potential divider. 6
- b) Write some recent advances in digital protection of power system. 6

**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.**