

Menoufiya University
 Faculty of Engineering
 Shebin El-Kom
 Postgraduate-PhD
 Final Exam



Subject/code: High Voltage
 Engineering/ELE702
 Time Allowed: 3 hours
 Year: 2019-2020
 Date: 25-8-2020

Allowed Tables and Charts: (None), Total marks: 100

Answer ALL Questions:

Question (1)

(35 Marks)

- (1-a) Describe the effect of external magnetic field on the breakdown strength of nanofilled transformer oil.
- (1-b) Explain the difference between parallel and perpendicular configurations of magnetic field considering their effect on breakdown strength of nanofilled transformer oil.
- (1-c) Discuss the effect of magnetic particles and magnetic field on conduction current of nanofilled transformer oil.

Question (2)

(35 Marks)

- (2-a) What is meant by GAS Model?
- (2-b) Discuss the effect of adding surfactant on breakdown strength of Transformer Oil-Based Nanofluids
- (2-c) Write about the sedimentation problem in nanofluids

Question (3)

(30 Marks)

- (3-a) Describe the effect of individual nanoparticles on heat transfer coefficient, conductivity, permittivity and breakdown strength of nanofilled transformer oil.
- (3-b) What is meant by hybrid nanofluids and their characteristics?

**Good Luck Prof. Mohamed A. Izzularab
 Dr. Amr M. Abdelhady**

This exam measures the following ILOs											
Skills	Knowledge & Understanding Skills				Intellectual Skills				Professional Skills		
	a1-1	a2-1	a4-1		b1-1	b9-1			c2-1	c3-1	
Question Number	Q1-a, b	Q1-c Q2-b	Q3-a,b		Q1-a,b	Q3-a			Q3-b	Q2-a,c	