

**IES COLLEGE OF TECHNOLOGY, BHOPAL**

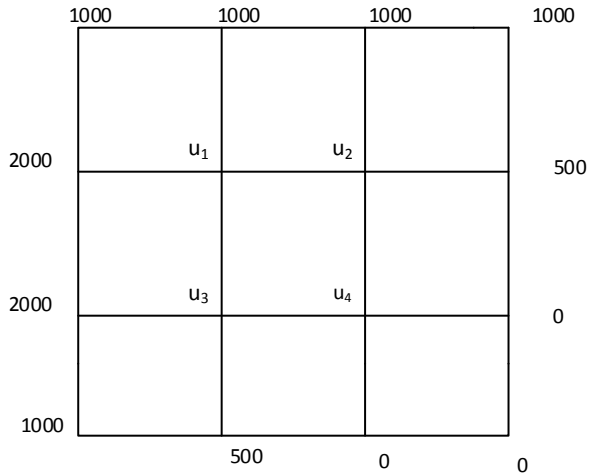
M.E..(1<sup>th</sup> SEM) Assignment -1

Advanced Mathematics (MEPS-101)

Units Cover-(I-II)

**Date of Assignment:10/10/2015**

**Date of Submission:26/10/2015**

Q.1	Using method of separation of variables, solve: $\frac{\partial u}{\partial x} = 2 \frac{\partial u}{\partial x} + u$ where, $u(x, 0) = 6e^{-3x}$	Mar., 2010
Q.2	Define binomial distribution. The probability the pen manufactured by a company will be defective is $\frac{1}{10}$ . If 12 such pens are manufactured, find the probability that a. Exactly two will be defective b. At least two will be defective c. None will be defective.	Mar., 2010
Q.3	Find the solution of two- dimensional heat equation.	June, 2011
Q.4	Solve the elliptic equation $u_{xx} + u_{yy} = 0$ for the following square mesh with boundary values as shown: 	Dec., 2010
Q.5	Find the Fourier transform of : $f(x) = \begin{cases} 1 & \text{for }  x  < 1 \\ 0 & \text{for }  x  > 1 \end{cases}$ Hence evaluate: $\int_0^{\infty} \frac{\sin x}{x} dx$	Mar., 2010

**IES COLLEGE OF TECHNOLOGY, BHOPAL**M.E.(1<sup>th</sup> SEM) Assignment -1

Power System Dynamics Analysis (MEPS-102)

Units Cover-(I-II)

**Date of Assignment:10/10/2015****Date of Submission:26/10/2015**

Q.1	Describe the factor affecting voltage in stability and voltage collapse. Min. words (400)	Dec., 2014
Q.2	Develop steady state model of synchronous generator.	Dec.,2011
Q.3	Define system security. Describe power static security levels.	Dec., 2014
Q.4	Define the following: a. Voltage Stability b. Voltage Collapse c. Mid-term and long-term stability Min. words (400) for each	March,2010
Q.5	A 50 Hz synchronous generator is connected to infinite bus through a line. The p.u. reactance of generator and the line are j0.3 p.u. and j0.2 p.u. respectively. The generator no load voltage is 1.1 in p.u. and that of infinite bus is 1.0 p.u. the inertia constant of generator is 3MW-sec/MVA. Determine the frequency of natural oscillation if the generator is loaded to a)60% b) 75% of its maximum power transfer capacity and small perturbation in power is given	Dec., 2014

**IES COLLEGE OF TECHNOLOGY, BHOPAL**M.E.(1<sup>th</sup> SEM) Assignment -1

Advanced power Systems Protection Relay (MEPS-103)

Units Cover-(I-II)

**Date of Assignment:10/10/2015****Date of Submission:26/10/2015**

Q.1	Explain the principle of operation of distance relays and discuss the effect of power swing and impedance on distance relay	Dec., 2014
Q.2	In what ways the static relay has been successful in replacing the conventional electromagnetic relay? Min. words (400)	Dec.,2010
Q.3	Draw the block diagram of static relay and explain various functional blocks with individual circuits.	Dec., 2014
Q.4	What are the comparators? Discuss duality between amplitude and phase comparator.	March., 2010
Q.5	Discuss different types of amplitude and phase comparators	Mar., 2010

**IES COLLEGE OF TECHNOLOGY, BHOPAL**  
M.E.(1<sup>th</sup> SEM) Assignment -1  
Power Electronics Application to Power System (MEPS-104)  
Units Cover-(I-II)

**Date of Assignment:10/10/2015**

**Date of Submission:26/10/2015**

Q.1	Write down the algorithm for formation of bus impedance matrix.	Dec., 2014
Q.2	Explain transmission line model and loadability in detail.	Dec.,2014
Q.3	What are the contingencies occurring in power system? Discuss in detail the contingency analysis of power system. Min. words (400)	Mar., 2010
Q.4	Develop a mathematical model of an OLTC.	Dec.,2011
Q.5	Explain the load flow study in detail.	Dec., 2014

**IES COLLEGE OF TECHNOLOGY, BHOPAL**  
M.E.(1<sup>th</sup> SEM) Assignment -1  
Advanced course in electrical machine (MEPS-105)  
Units Cover- (I-II)

**Date of Assignment:10/10/2015**

**Date of Submission:26/10/2015**

Q.1	Explain the concept of speed and transformer voltage, invariance of power as applied to electrical machines.	Dec., 2011
Q.2	What is Kron's primitive machine? Write down the voltage equation of a Kron's primitive machine in the matrix form quoting the observation made.	Mar. ,2010
Q.3	Based on concept of generalized theory discuss the modeling of a typical cross field commutator machine.	Dec., 2014
Q.4	Explain how park's transformations transform equations in a, b,c phase variables to d, q axes variables	March., 2010
Q.5	Derive the torque equation of a 3-phase induction machine based on generalized machine concept. Also discuss the interpretation of the torque equation.	Dec., 2014