

IV B.Tech. I Semester Regular Examinations, November -2005
COMPUTER AIDED DESIGN OF ELECTRICAL MACHINES
(Electrical & Electronic Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. Explain clearly different approaches of computer aided design of Electrical machines. [16]
2. Describe clearly selection of variables for optimal design of DC machines. [16]
3. How do you design magnetic circuit of a power transformer, explain it clearly.[16]
4. Describe formulation of design equation of a power transformer with the help of a suitable example. [16]
5. Explain the optimal design procedure of stator windings of a three phase alternator. [16]
6. Develop the algorithm for optimal design of non-salient pole synchronous machine. [16]
7. Explain the optimal design procedure of stator windings of three phase squirrel cage induction motor. [16]
8. Describe the selection of variables for optimal design of three phase Slipring Induction motor. [16]

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1. What are the mathematical programming methods? Explain any one of the methods clearly. [16]
2. Write down different algorithms for optimal design of dc machines. [16]
3. Develop the algorithm for optimal design of a three phase power transformer. [16]
4. Describe the design procedure for selection of variables for optimal design of power transformer. [16]
5. Explain clearly, the design of field system for Non salient pole synchronous machine. [16]
6. What are the constraint functions in the optimal design of three phase salient pole type alternator? Explain them clearly. [16]
7. Describe the optimal design of stator windings of three phase Slipring Induction motor. [16]
8. Explain clearly formulation of design equation of a three phase Squirrel Cage Induction motor with a suitable example. [16]

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1. Explain clearly Linear Programming technique in the design of Electrical machines. [16]
2. Describe the Design procedure of armature windings with an example. [16]
3. How do you select different variables for optimal design of power transformer.[16]
4. Illustrate the design of magnetic circuit of a power transformer with a suitable example. [16]
5. What is objective function of a three phase alternator in optimal design of three phase alternator? Explain it clearly with a suitable example. [16]
6. Develop the algorithm for optimal design of a three phase non salient pole synchronous machine. [16]
7. Explain clearly, selection of variables for optimal design of three phase squirrel cage Induction motor with an example. [16]
8. Develop the algorithm for optimal design of three phase slipring Induction motor. [16]

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1. Describe the constrained optimisation problems of the rotating Electrical machines. [16]
2. How do you formulate design equations of d.c machine. Illustrate with an example. [16]
3. Explain clearly the design aspects of power transformer windings. [16]
4. What are constraint functions in optimal design of power transformer, explain them clearly through an example. [16]
5. Describe the optimal design of field system for salient pole synchronous machine. [16]
6. How do you select the different variables for optimal design of three phase salient pole synchronous machine. [16]
7. What are the constraint functions in optimal design of three phase Induction motor? Explain them clearly. [16]
8. What are the main advantages of optimal design of three phase Induction motor and derive its design equations. [16]
