Hall Ticket Number :										

R11/R13

Code: 1G287

IV B.Tech. II Semester Advanced Supplementary Examinations June 2017

Energy Auditing and Demand side Management

(Electrical & Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any ***five*** questions

All Questions carry equal marks (**14 Marks** each)

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1. a) Mention the need of Energy Standards 4M

   b) Explain in detail about how to conserve electrical energy and explain some of the means to conserve energy. 10M

2. a) Write short notes on:
      (i) Pie charts
      (ii) Sankey diagrams 8M

   b) What is energy index? How is it calculated? 6M

3. a) Name the salient features of energy efficient motors. 7M

   b) What are the causes of voltage unbalance and over motoring in energy efficient motors? 7M

4. a) List out the various power factor improvement methods. 7M

   b) Explain the effect of harmonics on power factor. 7M

5. a) Suggest some of the practices for good lighting system. 7M

   b) With a neat sketch, explain how a pyrometer works. 7M

6. a) Explain the concept of depreciation in energy economic analysis. 7M

   b) With a neat example, explain the concepts of Taxes and tax credit. 7M

7 a) Define DSM. Give some of the benefits of DSM. 7M

   b) Explain about multi-utility power exchange model 7M

8 a) Brief about load priority technique. 7M

   b) List out some of the Energy Conservation awareness Programs. Mention the outcome of the program. 7M

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Hall Ticket Number :										

R11/R13

Code: 1G285

IV B.Tech. II Semester Advanced Supplementary Examinations June 2017

Principles of Power Quality

(Electrical & Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any ***five*** questions

All Questions carry equal marks (**14 Marks** each)

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1. a) What is power quality? Explain why we are concerned about power quality 8M

   b) Explain about CBEMA, ITI curves 6M

2. Explain the fundamental principles of protection and estimations voltage sag performances briefly 14M

3. a) What are the fundamental principles of over voltage protection of load equipment 6M

   b) Write short notes on utility capacitor switching transients for over voltages 8M

4. Explain the
   (a) harmonics versus transients
   (b) voltage versus current distortion
   (c) harmonic sources from commercial loads 14M

5. a) Explain the principles of controlling harmonics 7M

   b) Write short notes on harmonic distortion evaluations 7M

6. a) What are the applications of utility voltage regulator 7M

   b) Write short notes on capacitors for voltage regulation flicker 7M

7. Explain various RMS voltage variation indices 14M

8. Briefly explain the m monitoring considerations and power quality monitoring standards 14M

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Hall Ticket Number :										

R11/R13

Code: 1G281

IV B.Tech. II Semester Advanced Supplementary Examinations June 2017

Power Semiconductor Drives

(Electrical & Electronics Engineering)

Max. Marks: 70 Time: 3 Hours

Answer any ***ONE*** question
All Questions carry equal marks

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1. a) Derive the Speed , Torque equations of a fully controlled converter connected to a D.C Series motor for continuous current mode and draw the necessary waveforms. 12M

   b) List out the drawbacks of rectifier fed drives 2M

2. a) Why Three phase controlled drives are superior to single phase controlled drives**.** 2M

   b) Discuss the analysis of Three phase fully controlled converter fed DC separately excited motor drives with suitable waveforms and speed-Torque characteristics. 12M

3. a) A 220V,980 RPM,75 A DC separately excited motor has an armature resistance of 0.025Ω.It is braked by plugging from an initial speed of 1050 RPM Calculate Braking Resistance to limit braking current to twice the full load value. 4M

   b) Discuss the Multi-quadrant operation of an electrical drives with suitable application. 10M

4 a) Discuss the Two Quadrant operation of Type B chopper fed drives and draw the relevant waveforms. 10M

   b) A 220V, 1000 RPM and 100A separately excited dc motor has an armature resistance of 0.05Ω.The motor is fed from a chopper which provides both motoring and braking operations. The source has a voltage of 220V .Assuming continuous conduction.

      i) Calculate duty ratio of chopper for motoring operation at rated torque and 350 rpm. 4M

5. a) Explain Speed control of 3-Phase Induction motor using AC voltage controllers. 8M

   b) A 2.8 KW ,400V,50Hz ,4 pole ,1370 rpm, delta connected squirrel cage induction motor has following parameters referred to the stator :Rs=2Ω,Rr'=5Ω, Xs=Xr'=5Ω, Xm=80Ω. Motor speed is controlled by stator voltage control. When driving a fan load it runs at rated speed at rated voltage.

   Calculate i) motor terminal voltage, current and torque at 1200rpm. 6M

6. Draw the various schemes of VSI Induction motor drives and discuss the operation. 14M

7 a) Discuss the static scherbius drive with suitable diagrams. 10M

   b) Distinguish between static Kramers drive and static scherbius drive. 4M

8. Discuss the self controlled synchronous motor drive employing load commutated thyristor inverter with neat sketch. 14M

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