Hall Ticket Number :										

R-11/R-13

Code: 1G287

IV B.Tech. II Semester Supplementary Examinations Nov/Dec 2019

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) Give in detail about energy scenario in India and in abroad. 7M
   b) Briefly explain about Codes, standards and Legislation 7M

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) With a neat sketch, explain the construction of variable speed motor. Draw the characteristics. 10M
   b) List out the factors which effects loss distribution. 4M

4. a) List out the various power factor improvement methods. 7M
   b) Explain the effect of harmonics on power factor. 7M

5. Write a short notes on the following:
   (a) Lighting control
   (b) Data loggers
   (c) Lux meters 14M

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) What is DSM? Explain about the concept of 'time of day pricing' 7M
   b) Enumerate the different techniques of demand side management. 7M

8. a) Define load management and explain its importance 7M
   b) Discuss in brief about peak clipping and peak shifting. 7M

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Hall Ticket Number :										

R-11 / R-13

Code: 1G281

IV B.Tech. II Semester Supplementary Examinations Nov/Dec 2019

Power Semiconductor Drives

(Electrical and 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) Explain speed-torque characteristics of a 1- Φ fully controlled converter connected to separately excited D.C motor with continuous current operation. Draw the relevant wave forms.

   b) Explain the operation of single phase semi-converter fed separately excited D.C. series motor drive with necessary diagrams.

2. Explain the speed - torque characteristics of a separately excited dc motor connected to a three phase semi converter

3. a) Define Braking? And give brief discussion on various types of braking.

   b) A 220V, 1000rpm, 60A separately excited motor with armature resistance of 0.6Ω fed from a Circulating current dual converter with AC source voltage line voltage=165V. Determine converter firing angles for the following operating points:

      i. Motoring operation at rated motor torque and 900rpm
      ii. Braking operation at rated motor torque at 900 rpm
      iii. Motoring operation at rated motor torque and –900rpm
      iv. Braking operation at rated motor torque at –900rpm

4. A 230V, 500 rpm, 4.1A armature resistance and inductances are 7.56 Ω and 55.0 mH respectively of 1HP motor is driven with armature supplied from class A chopper and a 240V DC source. The field current is held constant at the value that gives rated operation on 230V the chopping frequency is constant at 50 Hz .The minimum load torque is 5 N-m

   (i) Determine the value of 't_{on}' for minimum load torque of 500 rpm

   (ii) Determine whether 'I_a' continuous for the conditions of (i)

   (iii) Determine the minimum value of 't_{on}' for which the current is continuous at 500 m and corresponding coupling torque

5. State & discuss various methods of speed control of Induction motors

6. A 3-phase, 50 KW,1475 rpm,420 V, 50 Hz, 4-pole star connected induction motor has the following data: R_S=0.4 ohm, R_r=0.21 ohms, X_S=0.95 ohm, X_r=0.85 ohm and X_m=32 ohm, All quantities referred to stator side. If the frequency is increased to 58 Hz by frequency control, determine:

   i) The slip at maximum torque.
   ii) The speed at maximum torque.
   iii) The break down torque

7. a) What is slip power recovery scheme? Explain with relevant diagrams.

   b) Brief the differences between Static Scherbius Drive and Static Krammers Drive

8. Describe the open-loop and closed loop methods of speed control of a synchronous motor using VSI

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