B.E (Electrical) Sem VIII (CBSGS) May 2018

Q.P.Code: 37331

DMAES

08/05/18

Duration:- Three Hours **Total Marks Assigned:- 80**

NOTE

1. Question No 1 is Compulsory.
2. Solve any three out of the remaining.
3. Figure to the right side indicates marks.
4. Assume the suitable data and mention the same if required

Q 1 Answer the following questions

a. Discuss the importance of electrical drawing/ plan with example. [5]

b. State the various factors to be considered while designing temporary power supply [5]

c. State the various factors to be considered while selecting the battery. [5]

d. State the various features of Energy Conservation Building Code 2007(ECBC -2007) [5]

Q 2a Discuss the various substation equipment options and design consideration that can be considered while designing. [10]

Q 2b Following loads are connected to a distribution transformer. [10]

Calculate (i). KVA rating of transformer

(ii) State and justify the various assumption related to the selection of transformer and other ratings

(iii) Draw a single line diagram showing various metering instruments, protections and load connections

Sr No	Load	Rating	Efficiency	Power Factor	Load Factor	Diversity Factor
1	Machine Shop	300	0.8	0.8	0.8	0.7
2	Paint Shop	500	0.9	0.75	0.7	0.4
3	Auxiliary Plant	700	0.9	0.8	0.9	0.6
4	Misc Load	100	0.6	0.8	0.85	0.5

Q 3a Discuss the design features of Switchboards [10]

Q 3b A 20 HP, 415 V, 0.8 pf. 3 phase, 0.85 efficiency, 1440 rpm, and delta connected induction motor is to be connected to a motor control centre by a cable of length 15 meters. This cable is running with three other cables. Ambient temperature is 45 degree centigrade and fault level is 20 KA. Select the size of a cable. Justify the various assumptions. [10]

Type of cable	Value of K (Cu)	Value of K (AL)
PVC Cable < 300 mm2	115	76
PVC Cable > 300 mm2	103	68
XLPE Cable < 300 mm2	114	92

Turn Over

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2 DMAES 08/05/18

Q 4a Design the illumination system for a reading room with dimensions (20L*15B*5H) in meter.

a) Draw the lighting layout b) Justify the various assumptions. c) Calculate the number of lamps [10]

Q 4b Discuss the various energy analysis techniques for energy optimization [10]

Q 5a Explain the energy auditing in detail with an example [10]

Q 5b Discuss the energy performance assessment of lighting system [10]

Q 6a Discuss the role of various energy efficient technologies and saving potential of each for [10]

(i) Power Factor Control (ii) Motors (any one)

Q 6b Discuss the implementation of Building Management System for energy efficient system design [10]
