QP code : 10083479

BE sem VIII Electrical ~~CBSGS(2019)~~ R-19 C scheme

Duration: - 03 Hours

Marks:-80

NOTE

1. Question No 1 is Compulsory
2. Solve any Three Questions out of the remaining
3. Assume suitable data if required and specify the same

Q No 1. Solve any Four
a. State the various steps followed in estimation Procedure.		[5]
b. State the criteria for selection of LT switch gear.		[5]
c. State the features of temporary power supply.		[5]
d. State the various features of Energy Conservation ACT 2001.		[5]
e. Explain targeting in energy conservation		[5]
f. State the energy potential of BLDC fan.		[5]

Q No 2A. Explain the design features of any two type of electrical plans. [10]

Q No 2B. Explain the design of protection system. [10]

Q No 3A Find the KVA rating of the transformer required which is feeding following three phase loads. Specify the various specifications required for transformer and its criteria's for the selection. [10]

Load No	Rating KW	LF	DF	Efficiency	Power Factor
1	150	0.8	0.7	0.7	0.95
2	350	0.75	0.6	0.8	0.9
3	250	0.75	0.6	0.9	0.85
4	450	0.8	0.5	0.9	0.7

Q No 3B. Why load management is required ? Discuss various electrical load management techniques [10]

Q No 4A. A 50 KW heater, rated for 415V, 3phase, 50Hz is connected to PCC by a cable of length 20m. Two other cables are running in a cable tray. Ambient temperature is 40^0C. Fault level is 20 KA. Grouping factor is 0.87 and ambient temperature correction factor is 0.82. **Calculate the cable current only.** Justify the various assumptions in the calculations and selection of cable conductor. **(Data Sheet Not Required)** [10]

Q No 4B A reading room measuring (43m (L) + 18m (B) + 5m (H) requires an average illumination of 350 lux. State the various assumptions in design of lighting system for this room. Calculate the number of lamps required. Draw the lighting layout.**(Data Sheet provided)** [10]

Q No 5A Explain the terms optimizing input energy and Bench marking in energy audit [10]

Q No 5B Explain the assessment of consumption energy in lighting system. [10]

Q No 6A Explain the Smart lighting system as an energy efficient technology for outdoor application [10]

Q No 6B Explain the implementation of Building Management system (BMS) and Energy management system (EMS) [10]

Data for Lighting System Designing

K	$R_C = 0.7$			$R_C = 0.5$			$R_C = 0.3$		
	$R_w = 0.5$	$R_w = 0.3$	$R_w = 0.1$	$R_w = 0.5$	$R_w = 0.3$	$R_w = 0.1$	$R_w = 0.5$	$R_w = 0.3$	$R_w = 0.1$
0	0	0	0	0	0	0	0	0	0
0.6	0.43	0.39	0.36	0.42	0.38	0.36	0.41	0.38	0.36
0.8	0.45	0.41	0.38	0.44	0.40	0.38	0.43	0.40	0.38
1.00	0.51	0.47	0.44	0.55	0.47	0.44	0.49	0.46	0.40
1.25	0.55	0.51	0.49	0.53	0.50	0.48	0.52	0.50	0.48
1.50	0.57	0.54	0.52	0.56	0.53	0.51	0.54	0.52	0.50
2.00	0.61	0.58	0.56	0.59	0.57	0.55	0.57	0.56	0.54
2.50	0.63	0.61	0.59	0.61	0.59	0.57	0.59	0.58	0.56
3.00	0.65	0.63	0.61	0.63	0.61	0.59	0.61	0.59	0.58
4.00	0.67	0.65	0.63	0.64	0.63	0.62	0.62	0.61	0.59
5.00	0.68	0.67	0.65	0.65	0.64	0.63	0.63	0.62	0.61

Lamp Data			
Sr. No.	Type of Lamp	Wattage	Lumen output
1.	Fluorescent (T8/T5)	18 (Halo phosphate)	1015
		36 (Halo phosphate)	2450
		18 (82/84/86)	1300
		36 (82/84/86)	3250
		28 (T5)	2800
2.	CFL	9	600
		11	760
		13	920
		18	1200

Sr. No	Type of Cable	Value of k (Cu)	Value of k (AL)
a)	PVC cable $\leq 300mm^2$	115	76
b)	PVC cable $> 300mm^2$	103	68
c)	XLPE cable	114	92

BE Sem VIII Electrical R-19 C scheme

Duration 3hrs   **Total Marks 80**

NB: 1) **Question No. 1 is Compulsory.**
      2) **Attempt any three Questions out of remaining five Questions.**
      3) **Assume suitable data if necessary and justify the same.**

Q1.   Answer any four of the following questions
         A)   What are the reason for voltage fluctuation?   05
         B)   State objectives of shunt compensator   05
         C)   Explain advantages and disadvantages of passive filter   05
         D)   Explain the merits of transmission interconnections   05
         E)   Explain basic principle of shunt compensation

Q2   A) Explain power factor correction in a single phase system   10
Q2   B) Comment how harmonics affect the rotating machines   10

Q3   A   How amount of power flow takes place in parallel electrical   10
         system ?
Q3   B) Write the short note on PQ theory.   05

Q4   A) Explain the operating principle of the Thyristor Controlled   10
         Reactor (TCR) in detail with VI characteristic
Q4   B) Enlist common power quality issues. Explain any five of them   10

Q5   A) Explain the Thyristor controlled phase angle regulator   10
         (TCPAR).
Q5   B) Explain various parameters which limit the loading capabilities   10
         of transmission line

Q6   A) Explain switching converter type series compensation (SSSC).   10
Q6   B) What are the objective of load compensation?   10

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BE sem VIII - COElectrical R-19 escheme

Duration: 3Hours   [Max Marks: 80]

N.B.: (1) Question No. 1 is compulsory.
      (2) Attempt any three questions out of the remaining five.
      (3) All questions carry equal marks.
      (4) Assume suitable data, if required and state it properly.

1. Solve **ANY FOUR** questions from following.   [20]

   a .Define the following terms: Radiometry , Photometry, CRI & CCT.
   b. Discuss the various driver circuits used for LED system.
   d. Explain Direct, Indirect, Semi-direct, Semi-Indirect lighting schemes .
   e. Explain tuneable white lighting system with LED.
   c. Explain circadian rhythm .

2. a. Explain construction and working principle of incandescent lamp.   [10]

   b. Explain optical light control system in detail.   [10]

3. a. Define Glare, state its type and explain techniques to minimize the glare. [10]

   b. A drawing hall 40m*25m*6m is to be illuminated with metal filament gas filled lamps to
   an average illumination of 90 lm/m^{2}on working plane 1 mt above the floor. Estimate
   suitable number, size and mounting height of lamp . Sketch the spacing layout. Assume
   coefficient of suitable number, size and mounting height of lamp . Sketch the spacing
   layout.   [10]

Size of Lamp	200	300	500
Luminous efficiency (lm /W)	16	18	20

4. a. Explain Road lighting with its objectives and design consideration. [10]

   b. A flood lighting system is to be provided for a building having a surface area on the front
   side of 800 square metres. The illumination is by the light of total 16 lamps rated for
   1000 W each. The arrangement is for uniform spreading of illumination. The luminous
   efficiency of lamps is 18 lm/W.Assume DF = 1.3, waste light factor = 1.2 and utilization
   factor of 0.4 workout the illumination in lux. The surface measures 50 m * 16 m. [10]

5. a . State and explain methods of lighting calculation.   [10]

   b. What are the general requirement in an industrial environment? State and explain
   component of industrial lighting.   [10]

6. a. Draw and explain Block diagram of smart street lighting system. [10]

   b. Explain daylight integration with artificial lighting for energy efficient lighting system.
                                          [10]
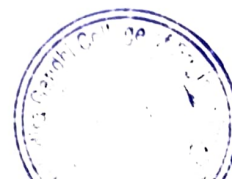
BE sem VIII Electrical R-19 c scheme

Duration: 3 hrs   **Total Marks: 100**

NOTE:

1. Question No 1 is compulsory
2. Solve any four out of remaining six questions
3. Figures on right hand indicate full marks
4. Assume suitable data if necessary

Q1) Solve **any four**   [20]

    a. Define reliability in power system.
    b. Explain difference between loss of load and capacity outage
    c. State importance of load forecasting.
    d. Define Customer average interruption frequency index (**CAIFI**) and discuss how it differ from System average interruption frequency index (**SAIFI**).
    e. What is Conditional probability approach?

Q2)   [20]

    a. Explain different factor to be considered in distribution system planning.

    b. What is load growth characteristic? Describe load growth characteristic for various loads.

Q3)   [20]

    a. A generation system has 4 identical units of 50 MW each with FOR=0.02. The load duration curve is linear with load factor of 60% and peak load 150MW.determine for this system loss of load probability and risk factor.

    b. Define the series and parallel system availability R (t) and unavailability Q (t) if n numbers of components are connected in series and parallel respectively.

Q4)   [20]

    a. A generator system consist of two units of 25MW and one unit of 50 MW with failure rate 0.01 failure/year and repair rate 0.49 repair /year. Find the generator model probability, departure rate and state frequency.

    b. Define two states Markova model and the expression for availability and unavailability.

Q5)   [20]

    a. Explain customer-oriented indices and load and energy–oriented indices.

    b. Explain data requirement for system reliability evaluation.

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Q6.   [20]

a. The system shown in following table has availability and unavailability of 0.98 and
    0.02 respectively

Unit no.	Capacity(MW)	Failure rate(f/day)	Repair rate(r/day)
1	25	0.01	0.49
2	25	0.01	0.49
3	50	0.01	0.49

Find system cumulative probability by recursive algorithm

b. Explain the impact of renewable energy on reliability of power system

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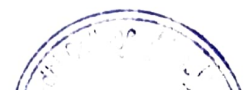
Time: 3 Hours   **Total Marks: 80**

Note:
1. Question No.1 is compulsory
2. Attempt any **three** out of the remaining **Five** questions.
3. Assume suitable data if necessary.

Q. 1.   Answer any **FOUR** of the following: (20)

   (a)   Describe the key elements that distinguish partnership from other forms of business ownership.

   (b)   Discuss the key regulatory and policy-related issues faced by small and micro businesses.

   (c)   Explain the factors involved in the growth of an Enterprise.

   (d)   State any four unique characteristics of Entrepreneur.

   (e)   Differentiate between Sales Budget and Marketing Budget?

   (f)   What impact do capital markets have on innovation and entrepreneurship in emerging industries?

Q. 2. (a)   What are the risks and challenges associated with each of the four growth strategies?   (10)

    (b)   Discuss the schemes and incentives introduced under the MSME Act that aim to encourage innovation and technology adoption in small businesses.   (10)

Q. 3. (a)   Write short note on Women Entrepreneurship Development with example.   (10)
    (b)   Entrepreneurs are "Dreamers with vision". State how.   (10)

Q. 4. (a)   Discuss role of Capital markets in Entrepreneural Development.   (10)
    (b)   Explain in short about Industrial Investment Bank of India Ltd. (IIBI)   (10)

Q. 5. (a)   State any four primary activities that are essential for a firm to have a competitive advantage as given by Porter   (10)

    (b)   Can you state any four features of angel investors that distinguish them from other types of investors? Why are angel investors crucial for the growth of early-stage companies?   (10)

Q. 6.   Answer the following.   (20)
   (a)   Explain the key components of a project report that are necessary for business planning and implementation?

   (b)   How do the activities of an EDP Cell enhance the entrepreneurial capabilities of small and medium-sized businesses?

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[Time: 3 Hours]   [Marks:80]

1. **Questions No. 1 is Compulsory.**
2. **Attempt any three out of remaining Questions.**
3. **Figures to the right Indicate full marks.**

Q.1 Attempt any Four.   20
  a) Explain any five Salient features of the Environment Protection Act, 1986.
  b) Describe the current energy scenario in India. What challenges does India face in meeting its energy demands?
  c) What is a food chain? How does it differ from a food web?
  d) What are atomic and biomedical hazards?.
  f) Explain the role of the government as a planning and regulatory agency.

Q.2 a) Discuss major environmental problems in India and their implications for public health and natural resources.   10
  b) Explain Ozone layer depletion? What are the Causes, effects and preventive measures of Ozone depletion?   10

Q.3 a) Define ecosystem. Classify different types of Ecosystems? What are the biotic and abiotic components of an ecosystem?   10
  b) Discuss the role of Central Pollution Control Board (CPCB) in pollution monitoring.   10

Q.4 a) What is ISO 14000? Explain its significance in environmental management and how it helps organizations reduce their environmental impact.   10
  b) What is Corporate Environmental Responsibility (CER)? Explain its importance and mention any three ways in which companies can practice CER to promote environmental sustainability.   10

Q.5 a) Compare natural and human-made sources of greenhouse gases. Which ones have the greatest impact on global warming and why? Support your answer with examples   10
  b) What is Environmental Quality Management (EQM)? Explain its objectives in detail.   10

Q.6 a) With reference to EMS, explain PDCA cycle with neat diagram.   10
  b) Critically evaluate the concept of sustainable development as a multidimensional approach. How does it reconcile the conflicting goals of economic growth, environmental conservation, and social equity?   10