

DMA

(3 Hours)

[Total Marks : 100]

- N.B. : (1) Question No.1 is Compulsory.
(2) Solve any Four questions out of remaining.
(3) Assume the suitable data if required and specify the same.

1. (a) Define the terms IRR and simple payback period. 5
(b) Define the terms load factor, future estimate. 5
(c) Discuss the terms coordination and discrimination. 5
(d) What ~~re~~^{are} features of green building. 5
2. (a) What is energy audit. What are different types of energy audit. 10
(b) Discuss the benchmarking. 10
3. (a) Discuss the energy auditing of lighting system. 10
(b) Discuss the building management system. 10
4. (a) What are various elements of monitoring and targeting. 10
(b) Discuss the role of maximum demand controller. 10
5. (a) Discuss the role of UPS as backup power supply. 10
(b) Discuss the different types of distribution systems. 10
6. (a) Discuss the tendering procedure in detail. 10
(b) Calculate the KVA rating of transformer which feeds the following loads. Specify the various assumptions. 10

Sr. No.	KW	LF	DF	Efficiency	PF
1	50	0.6	0.7	0.75	0.8
2	250	0.7	0.7	0.85	0.8
3	450	0.65	0.5	0.90	0.9
4	650	0.75	0.4	0.90	0.8

7. (a) Design the illumination system for a reading room with size (20L*16B*3.5H) in meter. Draw the lighting layout and justify the various assumptions. 10
(b) Discuss the impact of renewable energy sources in electrical system design. 10

TURN OVER

Data for Illumination Design Problems

Coefficient of Utilization Chart									
K	Rc = 0.7			Rc = 0.5			Rc = 0.3		
	Rw = 0.5	Rw = 0.3	Rw = 0.1	Rw = 0.5	Rw = 0.3	Rw = 0.1	Rw = 0.5	Rw = 0.3	Rw = 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

TURN OVER

Sr. No.	Type of Lamp	Wattage	Lumen Output
1.	GLS	25	230
		40	415
		60	710
		100	1340
		200	3000
2.	Tungsten Halogen	50 (Miniature Dichroic)	900
		300	5100
		500	9000
		1000	2200
3.	Fluorescent (T8/T5)	18 (Halo phosphate)	1015
		36 (Halo phosphate)	2450
		18 (82/84/86)	1300
		36 (82/84/86)	3250
		28 (T5)	2800
4.	CFL	9	600
		11	760
		13	920
		18	1200
