Master in Illumination Engg - First Year - Second Semester ....EXAMINATION, 2018

(1ˢᵗ /2ⁿᵈ Semester/~~Repeat/Supplementary/Annual/Bi-Annual~~)

SUBJECT......Lighting Power Conditioning, Monitoring and Control
(Name in full)

PAPER...

Full Marks 100

Time : ~~Two hours/~~Three hours~~/Four hours/Six hours~~

Use a separate Answer-Script for each part

No. of questions	Part I	Marks
	Question-1 is Compulsory & answer 2 from the rest (28+32=60)	
1.	**Answer any 7 of Question No. 1 (7 X 4=28)** **Justify with necessary corrections if any.**	
i)	Digital control for lighting was never essential.	
ii)	High frequency operation is less efficient for fluorescent lamp ballasts.	
iii)	Manchester encoding can be implemented in a dedicated DALI controller only.	
iv)	Active sensors are always effective than any passive occupancy sensors.	
v)	Manchester encoding is a bi-phase coding.	
vi)	In lighting control topology and physical layers are the same terminologies.	
vii)	DALI is a topology.	
viii)	Back end front end protocol for dimming system for an IOT based LED lamp are same.	
2. a)	What is the significance of lighting control protocol IES TM-23-11 for lighting control?	8
b)	Discuss about the basic difference between program, physical layer, topology and protocol in the context.	8
3. a)	What do you mean by addressing of DALI system? Discuss about merits and demerits of different addressing methods with the help of practical example.	7
b)	Write a note on forward frame and backward frame transmission for DALI system.	6
c)	How dimming can be implemented in DALI data transmission?	3

[Turn over

Form A: Paper-setting Blank   Ref. No. Ex/PG/IlluE/T/128A/2018

Master in Illumination Engg - First Year - Second Semester ....EXAMINATION, 2018
(1ˢᵗ /2ⁿᵈ Semester/~~Repeat/Supplementary/Annual/Bi-Annual~~)

SUBJECT.........Lighting Power Conditioning, Monitoring and Control.................
(Name in full)

PAPER...

Full Marks 100

Time : ~~Two hours~~/Three hours/~~Four hours/Six hours~~

Use a separate Answer-Script for each part

No. of questions		Part I / ~~Part II~~	Marks
4.	a)	What is the basic difference between passive and active transducers?	2
	b)	How occupancy sensors are generally characterized?	4
	c)	How the occupancy sensors are selected for an indoor application?	6
	d)	Compare DALI, DMX and 1/10V analog lighting control system.	4

M.E. in ILLUMINATION ENGINEERING EXAMINATION, 2018
(1st Year 2nd Semester)

SUBJECT : LIGHTING POWER CONDITIONING, MONITORING AND CONTROL

Full Marks –100

Time : Three hours   **(40 marks for this part)**

Use separate answer-script for each part

No. of question	Part II (40 Marks) Answer any two questions	Marks
1.a)	Define Networked Lighting Control System. Explain various objectives of lighting control system.	8
b)	Describe the concepts of Daylight Responsive Control, Demand Responsive Control, Lumen Maintenance Control & Scheduling Control Strategies of lighting control system. Explain each with example.	8
c)	How the proper lighting control options are selected in any indoor area? Explain with payback chart.	4
2.a)	Draw a block diagram of any digital thyristor dimmer circuit. Explain the functions of each block.	10
b)	Describe the design steps of any daylight responsive lighting control system. Also explain the concepts of zoning, open loop and closed loop system in this context.	10
3.a)	Define Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC). Write down different EMI control techniques at source and coupling paths.	8
b)	Explain the working principle of any electronic ballast of discharge lamp. What is the function of EMI suppressor circuit?	10
c)	What do understand by Energy management Control System?	2
4.a)	Discuss different electrical aspects related to design & safety of any lighting system installation.	10
b)	Explain various technologies of occupancy sensor based lighting control system and their performance in real application areas.	10