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Fourth Semester B.Arch. Degree Examination, June/July 2023 Building Services – II

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What are the various ways for 'Green Power Generation'? Explain briefly, the integration of any such technology in a building project with the help of example of any built project. (10Marks)
- b. Write short notes on –
- 'Substations' Transmission and Distribution system.
 - Under Ground cabling versus overhead cabling for Transmission and Distribution System. (10 Marks)

OR

- 2 a. Discuss in detail any two sources of electricity generation. (10Marks)
- b. Provide a Schematic diagram to explain electricity transmission and distribution system from source to consumer, mention role of various components involved in the process briefly. (10 Marks)

Module-2

- 3 a. Write short notes on –
- Transformers
 - H T Metering and Sub metering panels. (10 Marks)
- b. Explain Different types of cable installation systems used in building projects, with sketches. (10 Marks)

OR

- 4 a. Explain the step by step strategy to design a "NET ZERO ENERGY GREEN BUILDING". (10 Marks)
- b. Write short notes on –
- Diesel Generators
 - UPS System. (10 Marks)

Module-3

- 5 a. What is the basic principle behind "Lightning protection systems" for building? When does providing such a system becomes imperative for a building project? (10 Marks)
- b. Explain in detail, any TWO protective devices used in Building Electrical Systems. Use sketches to elaborate. (10 Marks)

OR

- 6 Write short notes on –
- Protection Relays
 - Earth Leakage Circuit Breaker
 - Pipe Earthing System
 - Faraday's Cage – Lightning Protection Systems. (20 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.

Module-4

- 7 Write short notes on –
- Recommended Lux levels.
 - Integration of Day lighting with Artificial Lighting.
 - Ambient, Task and Accent lighting.
 - Indirect & Direct Lighting Luminaries.
- (20 Marks)

OR

- 8 For a “Design Studio” of Size - 10m × 20m × 4m with sub areas – (Reception + waiting), 10 people meeting room work station for 10 people, (Printing area + Library). Design the lighting layout and justify the choice of Luminaries + Lamps, Positioning and spacing, and controls proposed -
- Qualitatively.
 - Quantitatively.
- Give the justification using sketches / sections / part plan calculations etc.
- (20 Marks)

Module-5

- 9 Write short notes on –
- LAN Systems
 - BMS
 - Connected load
 - Demand load
- (20 Marks)

OR

- 10 For an Airbnb with one Bed room + one Toilet + kitchenet + utility in Bangalore.
- Make Electrical Layout showing –
 - Lights + Controls
 - Fans + Controls
 - Specific Equipment socket
 - Extra power sockets
 - Extra Low voltage points
 - Main Distribution Board
 - Metering Board

(14 Marks)
 - Make a point matrix and calculate the connected load, Demand Load and total units consumption in kWh in the month of NOVEMBER .
Assume appropriate wattage ratings, load and diversity factors, and usage hours. (06 Marks)

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