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Fifth Semester B. Arch. Degree Examination, Jan./Feb. 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. Define Electrical services and mention its importance. Define the following terminologies i) Electric power   ii) Electric current   iii) Power Factor   iv) Power efficiency. **(08 Marks)**
   b. Explain the renewable and non-renewable sources of power generations and distribution with suitable diagram. **(12 Marks)**

OR

2 a. Explain by neat sketches, the process of electricity. Distribution in stages from substation to your residence. **(08 Marks)**
   b. What is transformer? Explain its working mechanism. Explain the classification of transformers typologies. **(12 Marks)**

Module-2

3 a. What is renewable energy? What are its different sources of generation? Explain with sketches. **(15 Marks)**
   b. Write short notes on the following : i) Fuse   ii) Circuit Breakers **(05 Marks)**

OR

4 a. Explain in detail different types of electrical wiring. Also elaborate on their advantages and disadvantages. **(14 Marks)**
   b. Explain common ISI standards for wiring installation in small buildings and Large buildings with sketches. **(06 Marks)**

Module-3

5 a. What are faults? Explain the typologies what are their consequences. **(08 Marks)**
   b. Explain why buildings need electrical systems and protective devices **(12 Marks)**

OR

6 a. What is Earthing? Explain its role in protection system of a building. Mention for earthing of a residential building. **(12 Marks)**
   b. Explain plate earthing method with the help of neat sketch. **(08 Marks)**

Module-4

7 Briefly describe the following :
   a) Ambient lighting
   b) Landscape lighting
   c) Façade lighting
   d) Laws of illumination **(20 Marks)**

OR

8 An office area is 20 meter (Length) × 10 meter (width) × 3 meter (Height). Ceiling to desk height is 2 meters. The area is to be illuminated to a general level of 250 Lux using twin lamp 32 watt CFL luminaries with a SHR of 1.25 each lamp has an initial output (efficiency) of 85 Lumen per watt. The lamp maintenance factor (MF) is 0.63, Utilization factor is 0.69 and space height ratio (SHR) is 1.25. Calculate the following :
   a) Total wattage of luminaries fixtures and Lumen/Fixture.
   b) Determine the number of luminaries fixture required for this installation
   c) Calculate the number of luminaries fixtures required along the width of the room
   d) Make a diagrammatic representation of the room showing axial and traverse spacing between the fixtures. **(20 Marks)**

Module-5

9 Explain the following extra low voltage system.
   a) Data cable TV network
   b) Building automation and security service
   c) Intrusion detection system
   d) Land and telephone system **(20 Marks)**

OR

10 a. List out the notations and signages used to depict an electrical layout. Also mentions the various heights, at which level you well provide various electrical points. **(10 Marks)**
    b. For a typical drawing room of 8m × 10m × 3m with a toilet of 3m × 2m × 3m, make a furniture layout with an electrical layout. Make a table showing various electrical points in the room. **(10 Marks)**

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