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V Semester B.V.A Degree Examination, March/April - 2022

INTERIOR AND SPATIAL DESIGN

Environmental Control (Theory)

(CBCS Scheme - 2019 Batch Onwards)



Time : 3 Hours

Maximum Marks : 70

**SECTION - A**

**I. Answer any five**

**(5×5=25)**

1. What is noise reduction? Explain the factors affecting it and solutions?
2. Discuss about the reverberation of sound with formula and illustrations.
3. Explain Considerations for good lighting with sketches.
4. Explain with examples any three types of sound absorbing materials and their applications with respect to their frequency and how they absorb sound.
5. Describe a luminaire along with its components.
6. Define the following terms.
  - a) Pitch and frequency of sound.
  - b) Noise reduction coefficient and sound absorption coefficient.

**SECTION - B**

**II. Answer any Three**

**(3×10=30)**

1. Discuss about pre-fabricated acoustical units in detail.
2. Differentiate between natural light and artificial lights. Explain the types of artificial lighting with examples.
3. Describe with sketches strategies that you would use for distribution of daylight in the interiors of a multi-level office building.

[P.T.O.]



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4. a) A room with dimensions length 30m and breadth = 15m is to be illuminated using 35 lamps to achieve uniform illumination of 400lux. Assuming utilization factor value as 0.9 and maintenance factor value as 0.8, find lumen output each lamp must have.
- b) i) Audible range of sound  
ii) Inverse square law.



**SECTION - C**

**III. Answer any one.**

**(1×15=15)**

1. Discuss about energy efficiency lighting with various sources of light along with illustrations.
2. a) What is sound insulation and transmission loss?  
b) Explain in brief the various methods of sound insulation through the wall of a building. Support your answers with neatly drawn details wherever required.

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