BACHELOR OF ARCHITECTURE (BARCH)

Term-End Examination

December, 2013

BAR-039 : ARCHITECTURAL SCIENCES AND SERVICES - II (ILLUMINATION AND ACOUSTICS)

Time : 3 hours   *Maximum Marks : 70*

Note : *Question 1 is compulsory. Answer* **any** *2 from section B and* **any** *2 from section C. Attempt 5 questions in total. Use of calculators is* **permitted.**

SECTION-A

1. Answer *any 4* from the following :   4x3½=14

    (a) Colour value

    (b) Intensity of a light source

    (c) Illumination

    (d) Polar curves

    (e) Maintenance factor of a lamp

    (f) Reverberation time

SECTION - B

(Attempt **any 2**)

2. (a) Describe incandescent lamps and fluoroscent lamps. Compare and contrast their functioning. 7

    (b) What is design sky illumination value ? 7

3. Discuss the steps involved in the calculation of luminous flux while designing the lighting of a building. Explain with a case study. 14

4. Explain the following terms : $4 \times 3\frac{1}{2} = 14$
    (a) Colour Rendering Index (CRT)
    (b) External reflected component (ERC)
    (c) Working Plane
    (d) Nominal luminous flux

SECTION - C

(Attempt **any two**)

5. Explain the design techniques for noise control in HVAC systems ? 14

6. (a) The reverberation time in a small reverberation chamber $3m \times 3.5m \times 4m$ is 4.0 second. What is the effective absorptivity of the surface of the chamber. 7

    (b) When $5m^2$ of one wall is covered with an acoustic tile, the reverberation time is reduced to 1.35. What is the effective absorptivity of the tile ? What would be the reverberation time if all surfaces of this chamber were covered with this tile. 7

7. Describe the acoustic design considerations while designing an office building. 14

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