

ILLUMINATION AND ACOUSTICS

Term-End Examination

June, 2011

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

Time : 3 hours

Maximum Marks : 70

Note : Section I is compulsory. Attempt any three question from section II and three questions from section III. All questions carry equal marks.

SECTION - I

1. Fill in the blanks : 5x2=10
- (a) Glare is effect of _____ or _____ within the visual field which causes annoyance and discomfort.
 - (b) Human ear can respond to sounds of frequency range _____ to _____.
 - (c) Lux is unit of _____ .
 - (d) Speed of sound in a medium depends on _____ and _____ of the medium.
 - (e) Sound waves are reflected, _____ and _____ upon encountering any obstacle.

SECTION - II

2. What are qualitative requirements of illumination? Explain with respect to a hospital building. How do you control these qualitative parameters in case of daylight? 10

3. How do you ascertain quantity of daylight admitted in a building? Explain procedure to determine Sky Component and Internally Reflected Component. What is the value of design sky you will take for daylight factor? 10

4. What is the role of mounting height in determining quantity of artificial light? Explain in detail Lumen method for artificial lighting. 5+5

Write short notes on :

- (a) Definitions of Lux value and Lumens.
- (b) Comparison of quality and light output of Incandescent lamp and CFLs.

5. (a) What is impact of daylight on heat gains? Explain with respect to incandescent and fluorescent tube lights. 5

(b) What energy conservation measures would you suggest for daylight and artificial lighting in school buildings? Ensure that quality and quantity is not compromised. 5

SECTION - III

6. What do you understand by "Noise Reduction," 'Sound absorption" and "Reverberation time" ? How would you use them in planning and design of buildings ? 10
7. Explain acoustical qualities of a multi-purpose auditorium. Explain role of various enclosing surfaces. 10
8. Identify problem of noise control in a typical hospital building. What remedies would you suggest. 10
9. An educational institute is adjoining a high traffic road. What design measures would you recommend to control noise at the level of : 5+5=10
- (a) Interior planning of the Institute
 - (b) Exterior planning of the Institute
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