POORNIMA UNIVERSITY, JAIPUR.

MID SEMESTER EXAMINATION 2020-21 (ODD Semester)

School : School of Planning & Architecture
Course : IV Year VII SEM – B. Arch.
Subject Name : Building Science-II
Subject Code : BAR07103

Max. Time: 1.5 hrs. **Max. Marks: 12**

NOTE:- Attempt four questions. There is internal choice in Q. 1 & 2, Q. 3 & 4, Q. 5 & 6 & Q. 7 & 8.

Sec-A (CO 3) (Max. Marks-6) **Marks**

Q.1 (a) Classify different types and sources of environmental noise. Discuss the effects of noise. **(3)**

(b) What is ambient noise. Differentiate with examples the various form of ambient noise. **(3)**

OR

Q.2 (a) Match the types of noise effect in Table-1 and the respective examples in Table-2. **(2)**

Table-1		Table-2	
P	Auditory	**1**	Change in normal pattern
Q	Physiological	**2**	Threshold Shift
R	Behavioral	**3**	Metabolic Change

(b As per the Central Pollution Control Board, New Delhi, the day time noise limit of Commercial area is **(2)**
(i) 40 dBA
(ii) 50 dBA
(iii) 55 dBA
(iv) 65 dBA

(c) Match the types of ambient noise in Table-1 and respective example in Table-2. **(2)**

Table-1		Table-2	
P	Continuous Noise	**1**	Passing of Single Train
Q	Intermittent Noise	**2**	Blasting in mines
R	Impulsive Noise	**3**	Noise from Blower

Q.3 (a) What are the major noise source in your city / town. Take a map of your city / town and locate the noise hot spot points **(3)**

(b Take an example of an office building next to a busy street. Develop a schematic noise mitigation strategy to control indoor (people & structural) and outdoor traffic noise. **(3)**

OR

Q.4 (a) Read the following two statements regarding the "geometric changes" methods of noise reduction, and chose the correct option. **(2)**
Statement P: Cut-and-fill between the road and house should place the noise sensitive receiver in sound shadow zone
Statement Q: Provision of a physical barrier between noise source and receiver will not affect the outdoor road noise level
(i) Both the statements are correct
(ii) Statement P is correct but Statement Q is wrong
(iii) Statement P is wrong but Statement Q is correct
(iv) Both the statements are wrong

(b The Total Noise Level (LTot) of three noise data: 80 dB, 60 dB and 40 dB will be **(2)**

(a) $L_{Tot} = \log(10^8 + 10^6 + 10^4)$ (c) $L_{Tot} = 10\log(10^{80} + 10^{60} + 10^{40})$

(b) $L_{Tot} = \log(10^{80} + 10^{60} + 10^{40})$ (d) $L_{Tot} = 10\log(10^8 + 10^6 + 10^4)$

(c) Which of the following can be a typical character of Noise? **(2)**
(i) Wide fluctuation of sound intensity level
(ii) More number of Harmonic frequencies
(iii) Steady and symmetric profile of sound propagation
(iv) More number of Octave frequencies

Sec-B (CO 4) (Max. Marks-6)

Q.5 **(a)** Define Candela & Flux. **(3)**

(b Define Lumen output & depreciation factor with example of a numerical **(3)**

OR

Q.6 **(a)** Match the photometric quantities in **Group-I** with their respective units in **Group-II** **(2)**

Group-I		**Group-II**
P	Illuminance	1 Candela
Q	Luminous Intensity	2 Candela/sqm
R	Luminance	3 Lumens/sqm
S	Luminous Efficacy	4 Lumens/watt
		5 Lumens

(b The ratio between *illumination at a working point indoor* to *total light available simultaneously outdoor* is known as **(2)**
(i) Daylight Factor
(ii) Sky Component
(iii) Internally Reflected Component
(iv) Externally Reflected Component

(c) Desired illumination level on the working plane depends upon: **(2)**
(i) age group of observers.
(ii) whether the object is stationary or moving.
(iii) size of the object to be seen and its distance from the observer.
(iv) all above factors.

Q.7 **(a)** Define day light factor with it's 3 components. **(3)**

(b Describe principles of good lighting. **(3)**

OR

Q.8 **(a)** Match the statements in Group I with corresponding statements in Group II. **(2)**

Group I	**Group II**
P. Candela (cd)	1. The illuminance from the sun without taking in to account the light from the sky
Q. Lumen (lm)	2. The SI unit of luminous intensity
R. Direct solar illuminance	3. The maximum distance to which a given day light factor contour penetrates in to a room
S. Day light penetration	4. The SI unit of luminous flux

(b The illumination level in houses is in the range of **(2)**
(i) 100-140 lumen/m2
(ii) 40-75 lumen/m2
(iii) 200-250 lumen/m2
(iv) 300-400 lumen/m2

(c) Which of the following lamp gives nearly monochromatic light? **(2)**
(i) Mercury vapour lamp
(ii) GLS lamp
(iii) Tube light
(iv) Sodium vapour lamp
