SCHOOL OF PLANNING AND ARCHITECTURE, VIJAYAWADA

SEMESTER END EXAMINATIONS (REGULAR) NOVEMBER - 2016

B. ARCH III YEAR V SEMESTER

BUILDING SCIENCE AND SERVICES (BS-5)

(LIGHTING AND ACOUSTICS)

Maximum Marks – 50 **Time – 2.00 Hours**

a) Answer any Two questions out of 1to 4 questions.
b) Question No.5 is compulsory and answer any four out of six sub-questions.
c) Use of scientific calculator is permitted.

Q1 A. Differentiate between photometry and radiometry. Define luminous flux and luminous intensity. Which cells in our eyes remain ineffective during photo pic vision? (10+5)

B. Explain with sketches the measures and tools for reducing glare in buildings. Differentiate between inverse square law and Lambert's cosine law.

Q2 A. Make a layout design for indoor lighting of a classroom of size 9m x 8m floor, under general lighting scheme, with the associated information given below: (10+5)

Number of lamps per luminaire = 2
Average illuminance over working plane = 500 lux
Each FTL 836W, will give 2450 lumen.
Co-efficient of utilization = 0.55
Maintenance factor = 0.75

B. Find the illuminance at a distance of 3M from a point source (I=3800cd, along the axis of the lamp) of light aimed at horizontal surface, if the angle of incidence is 45^0. Explain the role of lamp and luminaire in artificial lighting.

Q3 A. Explain Hass effect and state how Hass effect influences auditorium design. Optical shadow is bigger than acoustical shadow – Explain. (10+5)

An environment consists of four sound sources generating 70dB, 72dB, 75dB and 80dB. Find the resultant noise level of the environment.

B. What are the concert Hall design parameters? Write a brief note about NC curves.

P.T.O

Q4 A. Find the reverberation time of an anechoic chamber of 6m x 5m x 3m. Comment on the result. **(5+10)**
Total noise level in an environment is 85dB, after adding a noise source of 78dB. What was the previous background noise level? How this change will be perceived by our ear?

B. What is environmental noise? What are the sources of environmental noise?
Find the dimension of a sound reflecting ceiling panel for 500 HZ.

Q5 Write short notes on any FOUR of the following: **(4x5= 20M)**

a) Velocity and Displacement amplitude
b) Octave Band and 1/3rd octave band
c) Centre frequency of an octave band is 283HZ. Find the upper and lower limit of the octave band
d) Anidolic ceiling
e) Light shelves
f) Planckian locus

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