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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2020

Course Code: CE365

Course Name: FUNCTIONAL DESIGN OF BUILDINGS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) Distinguish between Power and Intensity of sound. (5)

b) Intensity of an air craft a 1km distance is 0.01 watts/m^2. Find the corresponding intensity in dB scale. (5)

c) What are the various noise control measures that can be adopted in a building? (5)

2 a) Find the reverberation time for a hall of 12m x 9m x 6m having average absorption coefficient of 0.15. Also determine how much area needs to treated with a material having absorption coefficient 0.20 to reduce the reverberation time to 1.2sec. (8)

b) In a 12sqm solid brick was, there is an opening of 1m x 1m size window covered with glass panels. Determine the composite transmission loss for the entire wall. Consider transmission loss for the glass is 20dB and for brick was it is 50dB. (7)

3 a) List and explain any six acoustical defects seen in an auditorium. (3)

b) Explain the behaviour of sound in (12)

(i) open space and (ii) closed space

PART B

Answer any two full questions, each carries 15 marks.

4 a) Define the components of Day light factor. What would be the indoor illuminance of a living room if the DF is 0.625%? (5)

b) Differentiate between the features of Lux Grid I and Lux Grid II used in design of windows. (10)

5	a)	What are the main types of luminaires, elaborate their flux distribution characteristics?	(5)
	b)	Discuss the application of polar distribution curve in artificial lighting.	(10)
6	a)	Differentiate between colour temperature and colour rendering.	(5)
	b)	Elaborate the methodology of Lumen Method used in Artificial lighting design.	(10)

PART C

Answer any two full questions, each carries20 marks.

7	a)	Explain the term, Thermal Comfort.	(5)
	b)	Explain the heat transfer process inside a building.	(9)
	c)	What is green building? Discuss the various rating systems of Green Buildings.	(6)
8	a)	Explain the factors affecting Thermal Comfort.	(10)
	b)	What is time lag and decrement factor?	(5)
	c)	Define Sol-Air temperature and relate its significance in thermal design of buildings.	(5)
9	a)	What is CET? Draw and explain CET Chart.	(14)
	b)	Explain the following: (i) Thermal Gradient (ii) Azimuth Angle (iii) Wall Azimuth Angle	(6)

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