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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Fifth Semester B.Tech Degree (S,FE) Examination January 2023 (2015 scheme)

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) List out the classifications of sound absorption materials? Briefly mention their relative merits and demerits. (6)
- b) Explain how noise from a busy street is quantified for acoustical calculations. (6)
- c) How will you interpret sound level measurements in dBA? (3)
- 2 a) Give any five adverse effects of noise on human beings (5)
- b) Explain any four defects that may occur in acoustical design of buildings and the remedial methods. (10)
- 3 a) What are the acoustical considerations of a recording/broadcasting studio? (5)
- b) Distinguish between air born and structure born noises (5)
- c) What are the properties required for a good barrier material? Give examples. (5)

PART B

Answer any two full questions, each carries 15 marks.

- 4 a) Define luminous flux, luminous intensity, illuminance and luminance (5)
- b) What are the types of Lux grids used for design of side lit windows? Discuss their suitability. (5)
- c) Explain the relevance and concept of design sky (5)
- 5 a) Explain the concepts and principles of outdoor lighting (10)
- b) Write short notes on polar distribution curves with the help of a neat sketch. (5)
- 6 a) Explain the BIS method of determining the sky component on a horizontal plane at a point inside the room from a given window. (5)
- b) Explain the concept of maintenance factor and utilisation factor in the lumen method of design of artificial lighting (10)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Explain the concept of green buildings (4)
b) Write about LEED and GRIHA ratings for the evaluation of green buildings (7)
c) Explain the concepts, principles and design of energy efficient buildings. (4)
- 8 a) Explain how to achieve thermal comfort in the following regions: (10)
1) Hot and dry
2) Warm and humid
b) What are the different types of shading devices? Explain the concepts and design of shading devices. (10)
- 9 a) What are the different thermal insulating materials used to maintain comfortable conditions inside a building? Explain the different methods of thermal insulation (12)
b) What is a solar path diagram? Explain its uses. (8)
