

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**FIFTH SEMESTER B. TECH (HONOURS) DEGREE EXAMINATION, DECEMBER 2017**

**Course Code: CE365**

**Course Name: FUNCTIONAL DESIGN OF BUILDINGS (CE)**

Max. Marks: 100

Duration: 3 Hours

**PART A**

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

Marks

- |   |   |      |
|---|---|------|
| 1 | a) Explain standing waves and resonance with figures.   | (10) |
|   | b) Give brief notes on threshold of hearing, Decibel scales, Octave bands and Sones scale.                              | (5)  |
| 2 | a) Distinguish between air and structure born noises with examples.   | (5)  |
|   | b) Explain transmission loss of sound. Describe the properties of sound absorbing materials and fixtures with examples. | (10) |
| 3 | a) Explain any four defects that may occur in acoustical design of buildings and the remedial methods.                  | (10) |
|   | b) What are the properties required for a good barrier material? Give examples.   | (5)  |

**PART B**

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

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|---|---|------|
| 4 | a) What are the visual tasks to be performed in buildings and the level of illumination requirements?                 | (5)  |
|   | b) Explain the concepts and principles of designing side lit windows and sky lights                                   | (10) |
| 5 | a) What is day light factor concept and the significance of the components?   | (5)  |
|   | b) What is glare? Describe the methods to prevent glare due to day lighting and artificial lighting inside buildings. | (10) |
| 6 | a) Explain the concepts and principles of street lighting and outside lighting.                                       | (10) |
|   | b) Give a short note on polar distribution curves   | (5)  |

**PART C**

*Answer any two full questions, each carries 20 marks.*

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|---|---|------|
| 7 | a) Describe the active and passive solar design of buildings  | (10) |
|   | b) Explain day lighting of buildings in tropical region, hot-dry climate and warm-humid climate.        | (10) |
| 8 | a) Explain the concepts, principles and design of energy efficient buildings.                           | (10) |
|   | b) Explain heat flow through buildings and thermal conductivity of traditional building materials.      | (10) |
| 9 | a) Describe the concepts, principles and bioclimatic design of buildings.                               | (10) |
|   | b) What are the different types of shading devices? Explain the concepts and design of shading devices. | (10) |

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