

Register No:

Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SIXTH SEMESTER B.TECH. DEGREE EXAMINATION(R,S), MAY 2024**Civil Engineering****(2020 SCHEME)****Course Code : 20CET372****Course Name : Functional Design of Buildings****Max. Marks : 100****Duration: 3 Hours****PART A***(Answer all questions. Each question carries 3 marks)*

1. Define sound absorption coefficient.
2. Define the term noise reduction.
3. Enlist the techniques through which natural lights enter into a building.
4. List out different types of pole arrangements in street lighting.
5. Describe shading devices for a building.
6. Describe psychometric chart.
7. Summarize the major causes of fire in a building.
8. Discuss the electrical load calculation of a building.
9. Enumerate the objectives of an intelligent building.
10. Define green buildings.

PART B*(Answer one full question from each module, each question carries 14 marks)***MODULE I**

11. Explain various factors to be considered for effective sound insulation. 14

OR

12. Explain the phenomenon of reflection of sounds and describe its various applications. 14

MODULE II

13. a) Consider the illuminance at a single point on a horizontal surface from a single luminaire straight down, given that: $D = 2.13 \text{ m}$, $\theta = 15^\circ$, $LLF = 0.85$ (light loss factor), $I = 2200 \text{ candelas}$. Calculate the illuminance level at this point. 10

- b) Define colour rendering index. 4

OR

14. a) Explain the factors that controls the daylight penetration into a building. 9
b) Describe colour temperature. 5

MODULE III

15. Elucidate perihelion and aphelion. 14

OR

16. a) Explain the factors to be considered for thermal design of a building in hot and dry climate zone. 10
b) Discuss the different climatic zones in India. 4

MODULE IV

17. Explain the various factors to be considered for the HVAC system design in a building. 14

OR

18. Describe the different types of elevators and how to select an elevator based on the type of building. 14

MODULE V

19. a) Explain the orientation of rooms as per Vasthu Shastra. 7
b) Discuss the energy pattern considered in Vasthu Shastra. 7

OR

20. Explain the highlights of a residential house as per vernacular architecture. 14
