

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025

Second Semester

Civil Engineering

PH3201 / UPHT24201- Physics for Civil Engineering

Regulations – 2021 & 2024

Duration : 3 Hrs

Maximum : 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Define fenestration.	L1	1	2
2.	Mention a few methods of thermal insulation.	L2	1	2
3.	How can the Air Conditioning (AC) systems be protected against fire?	L2	2	2
4.	What is the cooling load?	L2	2	2
5.	What are the main causes of noise in multi-storeyed buildings?	L2	3	2
6.	How sunglasses help to reduce glare?	L2	3	2
7.	Distinguish between crystalline and non-crystalline.	L2	4	2
8.	Explain the characteristics of high aluminum ceramics.	L2	4	2
9.	What is probabilistic seismic hazard analysis?	L2	5	2
10.	Mention a few fireproofing materials.	L2	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i Based on the factors that affect the thermal performance of buildings, suggest specific design changes or materials that can be used to improve thermal insulation and reduce heat gain in the building.	L3	1	10

Consider the following factors in your solution:

- i. Wall materials
- ii. Roof design and materials
- iii. Window placement and glazing
- iv. Ventilation strategies
- v. Shading and orientation

Justify your choices by explaining how each factor impacts the thermal performance of the building.

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|---|----|---|---|
| ii The classroom is overcrowded, and students are complaining about discomfort due to heat. Use the concept of clothing insulation to determine how increasing ventilation can improve thermal comfort. | L3 | 1 | 6 |
|---|----|---|---|

Or

	b i	Derive an expression for the quantity of heat conducted through two bodies arranged in parallel.	L3	1	8
	ii	Discuss the different types of shading devices.	L2	1	8
12.	a	Design a fan coil system and a chilled water plant, detailing the operational principles and key components involved.	L3	2	16
		Or			
	b	How is natural ventilation designed and measured in a building, and what methods are used to ensure that it works effectively?	L2	2	16
13.	a	What are the different methods used to absorb sound in buildings, and how do these methods help improve acoustics inside?	L2	3	16
		Or			
	b i	Write in detail the principles and technique involved in the artificial lighting.	L2	3	10
	ii	How is daylight calculated in building design?	L2	3	6
14.	a	How are metallic glasses prepared, and how is the melt-spinning process utilized to produce them? Additionally, what are the advantages of using metallic glasses as transformer core materials?	L2	4	16
		Or			
	b	Can you explain what fiber-reinforced plastics and fiber-reinforced metals are, how they are made, and what they are used for?	L2	4	16
15.	a	How would you apply safety measures to mitigate the impacts of cyclone and flood hazards in a vulnerable area?	L2	5	16
		Or			
	b	Discuss the various earthquake hazards and explain the disaster mitigation after the earthquake.	L2	5	16