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Question Paper Code : 30310

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Second Semester

Civil Engineering

PH 3201 — PHYSICS FOR CIVIL ENGINEERING

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the significance of fenestration in construction?
2. Name a few of the thermal comfort indices of the buildings.
3. What is the purpose of building ventilation? Provide a few of ventilation choices.
4. How does a fan coil system keep a building's temperature stable?
5. List the sound absorption methods and the major types of sound absorption.
6. What is the purpose of an artificial sky? Provide a few artificial skies.
7. What are metallic glasses? Mention its key characteristics.
8. What is isostatic pressing? Provide a few methods for manufacturing the materials.
9. What are seismic waves, and what are the many forms of seismic waves?
10. What is fire proofing, and mention some fire proofing materials?

PART B — (5 × 16 = 80 marks)

11. (a) (i) State and define the three modes of heat flow in matters. (6)
 (ii) How will you determine the thermal conductivity of rubber? (10)

Or

- (b) (i) What are the heat gain and heat loss in buildings? (6)
 (ii) Describe the elements that affect the building thermal performance using examples. (10)

12. (a) (i) What is natural ventilation? Give the types of natural ventilation. State the advantage and disadvantages of natural ventilation. (6)
 (ii) Explain the principle behind wind driven and stack ventilation mechanism. (10)

Or

- (b) Develop the design and operation of a fan coil system and a chilled water plant. (16)

13. (a) (i) What is the scale used for noise level? And define the sound absorption coefficient of materials. (6)
 (ii) Describe any one methods of measurement of sound absorption coefficient of material. (10)

Or

- (b) (i) What is glare and how do you reduce it? (6)
 (ii) Write in detail the principles and techniques involved in the artificial lightings. (10)

14. (a) (i) What is the function of composites in building construction? Name few of the composites in construction. (6)
 (ii) Explain in detail about the structure and applications of fiber reinforced plastics and fibre reinforced metals. (10)

Or

- (b) Explain the characteristics of ferroelectric, ferromagnetic and high aluminum ceramics. (16)

15. (a) (i) Explain the occurrence of earthquake ground motion. (6)
 (ii) Explain the principle and working of a seismograph. (10)

Or

- (b) (i) Explain in detail how the cyclone is formed? (6)
 (ii) Discuss in detail about fire hazards and guidelines on preventive measure. (10)