| Reg. No. | | | | | | | | | | | | |
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| Question Paper Code | 12464 |
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**B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023**

Second Semester

**Civil Engineering**

**20BSPH204 - PHYSICS FOR CIVIL ENGINEERING**

(Regulations 2020)

Duration: 3 Hours Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

| | | *Marks, K-Level, CO* |
|---|---|---|
| 1. | What is reverberation? | *2,K1,CO1* |
| 2. | What are composite materials? | *2,K1,CO2* |
| 3. | What are the steps for the processing of ceramic materials? | *2,K1,CO2* |
| 4. | What are the types of glare? | *2,K1,CO3* |
| 5. | State inverse square law. | *2,K1,CO3* |
| 6. | What is thermal insulation? | *2,K1,CO4* |
| 7. | Define fenestration. | *2,K1,CO4* |
| 8. | What are the advantages of the window air-conditioner? | *2,K1,CO5* |
| 9. | Define focus and epicentre of earthquake. | *2,K1,CO6* |
| 10. | What are the types of seismic waves? | *2,K1,CO6* |

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

| | | | |
|---|---|---|---|
| 11. | a) | Describe SMA (Shape Memory Alloys) and their characteristics in detail. | *13,K2,CO2* |
| | | **OR** | |
| | b) | Discuss the classification of composites. Give detailed study of Fiber reinforced plastics (FRP) and Fiber reinforced metal (FRM). | *13,K2,CO2* |
| 12. | a) | Describe the photopic, mesopic and scotopic vision in detail. | *13,K2,CO3* |
| | | **OR** | |
| | b) | Explain the principles of artificial lighting and discuss their sources in detail. | *13,K2,CO3* |
| 13. | a) | Derive the heat gain and heal loss in the components of buildings. | *13,K2,CO4* |
| | | **OR** | |

b) Explore the factors affecting thermal performance of buildings. *13,K2,CO4*

14. a) Explain the working of window air conditioner. *13,K2,CO5*

**OR**

b) Classify ventilation, discuss the principles of natural ventilation, ventilation measurements and design for natural ventilation. *13,K2,CO5*

15. a) Discuss the earthquake ground motion based on their types, intensity and magnitude. *13,K2,CO6*

**OR**

b) Explain the body and surface waves involved in the seismic terms. *13,K2,CO6*

## PART - C (1 × 15 = 15 Marks)

16. a) Discuss the factors such as reverberation time, resonance, echelon effect and focusing that affect the acoustics of a hall and their remedy. *15,K2,CO1*

**OR**

b) Explain Sabine's Formula for the reverberation time of a Hall. Determine the growth and decay of sound energy. *15,K2,CO1*