

PH3201 PHYSICS FOR CIVIL ENGINEERING

IMPORTANT QUESTIONS AND QUESTION BANK

UNIT-I THERMAL APPLICATIONS

2-Marks

1. What is meant by fenestration and why we do require it?
2. What is thermal insulation?
3. What is the principles of thermal insulation?
4. List out the benefits of thermal insulation?
5. Define heat gain and heat loss?
6. List the few factors affecting the thermal performance of building?
7. Define thermal indices?
8. Define solar radiation?
9. What are the uses of shading devices?
10. What is the thermal performance in the building?

13-Marks

1. (i) What is meant by fenestration and what are the advantages? (ii) Describe the benefits of thermal insulation?
2. Discuss in details the factors affecting the thermal performance of building?
3. Discuss the heat gain and heat loss estimation in the components of building?
4. Describe the climate and design of solar radiation?
5. Explain in details of central heating and list the advantages and disadvantages?
6. Explain the principles of heat transfer in the building and give it limitations?
7. Explain about (i) heat loss (ii) heat gain (iii) steady state of heat flow
8. What is condition through the compound media and explain the neat diagram?
9. What are the thermal measurements of the building?
10. Discuss in the details about steady state of heat flow and draw the neat diagram?
11. Write a short note on; (i) thermal indices (ii) solar radiation (iii) thermal insulation and benefits?
12. What are the shading devices use to the building and explain it?
13. What are the limitations of the heat transfer?

14. What are the benefits of thermal insulation and significance of the thermal comfort?

UNIT-II VENTILATION AND REFRIGERATION

2-Marks

1. What is ventilation?
2. How will you classify the natural ventilation?
3. How is chilled water plant different from other system?
4. Write is least two advantages of fan coil system?
5. What is cooling load?
6. What do mean by Air-conditioning?
7. What are the types of water piping?
8. Mention at least two precautions to prevent fire caused by AC systems?
9. Define chilled water plant?
10. What is the requirements of ventilation?

16-Marks

1. Write the principle of natural ventilation?
2. Discuss the details ventilation in a building and explain how is the ventilation is measured?
3. Explain in the details the design and the measurements of natural ventilation in the building?
4. Discuss in the details the window type and packaged air conditioner system?
5. Describe the principle and construction, working chilled water plant in the neat diagram?
6. Write a short note on (i) fan coil system with its block diagram (ii) Designing the natural ventilation
7. Write a short note on (i) water piping (ii) cooling code
8. Explain in the detail the different types of Air-conditioning systems
9. Discuss in details the centralized air conditioning system for different type of building?
10. Discuss the air-conditioning systems for different types of building and protection against fire caused by AC systems?
11. Write the window types and packaged air conditioners?
12. Give the types of building used in Airconditioning system?
13. Explain the type of water piping in detailed with examples?
14. Write the classification of natural ventilation?

UNIT-III ACOUSTICS AND LIGHT DESIGN

2-Mark

1. Define intensity of sound?
2. What is decibel?
3. Mention a few sounds absorbing materials?
4. What are the sound acoustical factored to be consider while construct any building?
5. Mention the few requirements for good acoustics of building?
6. Mention few factors affecting the acoustics of building?
7. State cosine law?
8. Mention different types of Glares.
9. Mention few artificial light sources?
10. Define discomfort glare?

13-Marks

1. Explain the various factors that affect acoustics of building? And give their remedies?
2. (i) Describe the methods of sound absorption in buildings
(ii) How will you estimate absorption coefficient of material
3. Discuss the various types of sound absorbing materials?
4. Describe the different types of sounds absorbers used in designing a building with good acoustics properties?
5. Write a note on different types of noise in the building?
6. Explain in details with various methods of sound absorptions?
7. What is sound insulation? How will measured?
8. Discuss in detailed about impacts of noise in multi-storeyed building?
9. Explain the colour- luminous efficiency function?
10. Explain the following a) photopic b) mesopic c) scotopic
11. Write a detail about in the day light design and measurement in the building?
12. Write a detailed note on effect of window shape and size of in day light?
13. What is meant by day light factor? Describe write the role of Artificial sky in the building lighting design?
14. Explain the possible methods to measure the day light in a building with neat diagram?
15. Describe the principle of Artificial lighting and supplementary artificial lighting?

UNIT-IV NEW ENGINEERING MATERIALS

2-Marks

1. What are composite materials?
2. What is types composite in based on matrix materials?
3. What is fibre reinforced plastics?
4. What are the types of fibre reinforced plastics?
5. What are Metallic glasses?
6. Mention the properties of metallic glasses?
7. What is the shape memory alloys?
8. What is pseudo elasticity?
9. What are the ceramic materials?
10. Distinguish between crystalline and non- crystalline ceramics?

13-Marks

1. Discuss the classification of composite materials? Give the detailed and study of FRM and FRP.
2. Explain in the details with preparation, properties and application of fibre reinforced plastics?
3. Explain in details about the preparation and -properties of metallic glasses?
4. How are the metallic glass prepared? Explain how the melt spinner devices can be used produce met glasses?
5. What are shape memory alloy? How are they prepared? Explain with neat diagram their characteristics?
6. List out the application of shape memory alloys?
7. Discuss in the details about manufacture properties in ceramics and its applications?
8. What is the ceramic material? Discuss in the various properties and application in the construction engineering?
9. Discuss the classification of ceramics?
10. Describe slip casting process in detail and mention different ceramic forming processes?
11. Explain the following manufacturing methods of ceramics (i) slip casting (ii) Isostatic pressing (iii) gas pressure bonding
12. Explain the thermal, chemical, electrical and mechanical properties of ceramic materials?
13. Discuss in detail the manufacturing process of ceramics materials and give its applications?
14. Describe the characteristics, advantages and application of ceramic Fibre?
15. Write a note on; (i) ferroelectric ceramics (ii) ferro magnetics (iii) high aluminium ceramics

UNIT-V NATURAL DISASTER

2-Marks

1. What are seismic waves?
2. Explain P-waves and S-waves?
3. Define two types of surface waves?
4. Define intensity of Earth quake?
5. What is the cause of earth quake?
6. Mention few units of measurements of earth quack?
7. Write about DSHA?
8. Write few four steps in PSHA?
9. What are flood hazards?
10. List the method of flood prevention?

13-Marks

1. Discuss the various Earth quake Hazards and explain the disaster mitigation after earth quake?
2. Discuss the earth quake ground motion with intensity and magnitude?
3. Describe the earth quake in terms of P-wave and S-wave in explain the various parameters?
4. Explain the deterministic seismic hazard analysis and probabilistic seismic hazard analysis?
5. Discuss the deterministic seismic hazard analysis?
6. Explain in details how cyclone is formed? And what are the different types?
7. Discuss in detail the cyclone and the flood hazards? And what are the safety measures?
8. Explain cyclone hazards and with cause and effects?
9. What are the flood hazards? Explain the preventive measures?
10. Explain in details about flood hazards?
11. Discuss the various hazards due to fire in a multi-storey building and guidance on preventive measure first aid and another way to minimizes the damages?
12. Describe the fire proofing materials?
13. Explain in details the operation and different types of fire extinguishers equipments?
14. Explain in detail the power safety regulation and fire safety equipments?
15. Explain the fire safety regulations and details the units of measurements in earthquake?