

1. Explain three computational design approaches?
2. Sketch an example for each of the approaches of computational design?
3. What is the most suitable thermal comfort model for assessing naturally-ventilated indoors?
4. Explain Adaptive comfort model?
5. Mention a related standard addressing adaptive comfort model with its acceptability range?
6. Adaptive comfort model is used for what kind of spaces?
7. What is the most suitable thermal comfort model for assessing air-conditioned indoors?
8. Explain PMV comfort model?
9. What is the Fanger comfort model?
10. Explain PMV-PPD comfort model?
11. Mention a related standard addressing MPV comfort model with its acceptability range?
12. Static PMV model is used for what kind of spaces?
13. Explain is mixed mode spaces?
14. What is the most suitable parameter for assessing indoor air quality?
15. Explain and mention a related standard/ guideline that address IAQ with its acceptability ranges or threshold?
16. What is indoor environmental quality?
17. Explain IEQ and give examples?
18. What is indoor air quality?
19. What is indoor thermal comfort?
20. Explain IAQ and ITC?
21. Explain three computational design approaches? And support your answer by sketching an example for each one?
22. Explain the responsive and interactive design approaches? And support your answer by sketching an example for each one?
23. What is interactive architecture?
24. What is responsive architecture?
25. What is parametric design? Sketch some examples?
26. The sub-domains of indoor environmental quality (IEQ) include  
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..... , .....

27. When assessing fully air-conditioned indoors, the most appropriate thermal comfort model to apply is  
 .....
28. Building integrated photovoltaics (BIPV) refers to .....
29. Indoor air quality (IAQ) is “the air quality within and around buildings and structures, especially as it relates to the ..... and .....”.
30. Indoor thermal comfort is controlled by several factors; the major environmental factors are  
 ..... , ..... ,  
 ..... , ..... , and ..... ,  
 while human factors include ..... , and .....
31. The indexes of assessing indoor air quality include several parameters, such as  
 ..... , ..... , ..... , .....  
 , .....
32. G. Parametric design is an approach of  
 .....
33. What are the components of IEQ and mention some applications?
34. What is building integrated photovoltaics?
35. Mention and sketch some applications of BIPV?
36. BIPV has dual function, what are they?
37. What are the environmental factors that affect indoor thermal comfort?
38. Mention the human factors that affect indoor thermal comfort?
39. Occupants’ health and productivity are controlled by?
40. A poor IAQ can result is which building problem?
41. Sick building syndrome is a result of what?
42. What are the indexes of IAQ?
43. CO2 is a proper indicator of what?
44. High CO2 concentration results in what?
45. What is Building Integrated Photovoltaics (BIPV)? Mention and sketch three applications of BIPV?
46. Discuss Augmented Reality (AR) and Virtual Reality (VR)? And explain how both technologies contribute to the field of architecture?
47. Based on the ASHRAE 55 standard, what are the criteria that should be met to apply the adaptive thermal comfort model?

48. Mention three innovative materials with their features and use? And explain the advantages of innovative materials?
49. Classify indoor environment based on heating, ventilation, and air-conditioning (HVAC) methods and explain them in brief?
50. What is Augmented Reality (AR)?
51. What is Virtual Reality (VR)?
52. What are the conditions to apply adaptive thermal comfort model?
53. What are the indoor thermal comfort models that are defined by ASHRAE 55 standard?
54. What are the advantages of innovative materials?
55. Explain innovative materials with appropriate sketches?
56. Explain the following terms in brief:
57. Responsive design
58. Interactive design
59. Virtual Reality
60. Augmented reality
61. Parametric design
62. Mention a multi-functional and innovative material that can be integrated into building envelope? Sketch three applications of this material on building envelope?
63. Mention and explain three modern technologies or systems within the scope of building technology?
64. What is the aim of modern technologies and practices?
65. What is indoor thermal comfort? And what are the environmental and human factors that control indoor thermal comfort?
66. Name the most suitable thermal comfort models for assessing (1) fully air-conditioned and (2) naturally ventilated indoors?
67. What is indoor air quality? And what is IAQ related to?
68. Carbon dioxide is a relevant indicator for assessing indoor air quality. According to WHO, what is the acceptable threshold of indoor CO<sub>2</sub>?
69. Mention three indicators of indoor air quality?
70. VOC, HOHO, and PM are the common indicators of assessing what?
71. Define building technology?
72. Explain 3D printing?
73. What are the advantages of 3D printing?
74. Discuss construction technologies?

- 75.** What are the advantages of design technologies?
- 76.** Mention some design technologies that contribute to the field of architecture?
- 77.** Mention five façade systems?
- 78.** Explain dynamic architecture and responsive facades?
- 79.** What is dual axis solar tracking system? And what are the advantages and disadvantages of it?
- 80.** What is climate responsive design? Explain and sketch an application of it in vernacular architecture?