



Seat No. \_\_\_\_\_

**HAC-161001010703**

**B. Arch. (Sem. VIII) Examination**

**May - 2023**

**Environmental Science & Services - V (Core)**

Time : 2 Hours / Total Marks : 50

**Instruction :**

1. Critical understanding of subject is the key-criterion of assessment
2. Support your statement with examples/sketches wherever necessary
3. Assume appropriate data wherever necessary
4. Attend all Four (04) equations

**1 Objective type Question, attend any Ten (10) 10**

1. Full form of HTC : \_\_\_\_\_.
2. Full form of GRIHA : \_\_\_\_\_.
3. Full form of LEED : \_\_\_\_\_.
4. Full form of AHU : \_\_\_\_\_.
5. Full form of VRV : \_\_\_\_\_.
6. Decibel Scale (DB) has been used to measure \_\_\_\_\_ of Sound. (loudness / Frequency / Intensity / Pitch)
7. Place in a building, designed to hold occupants during the Fire or other emergency is called \_\_\_\_\_ area. (Refuge / Safe / Evacuation)
8. In India for Daylight design, we consider the \_\_\_\_\_ altitude position of sun. ( $15^\circ$  /  $23^\circ$  /  $34^\circ$ )
9. Air-conditioning is compulsory in \_\_\_\_\_ of Hospital. (Burn ward / Operation Theatres / Laundry)
10. Fire-fighting system is compulsory for minimum \_\_\_\_\_ Mt. high buildings, as-per the CGDCR. (16.50 / 25.00 / 40.00)
11. Rainwater harvesting through Bore-well recharge is compulsory for all buildings, as per the CGDCR. (True / False / Not sure)

12. Double piping system is not compulsory for Hotel buildings, as per the CGDCR. (True / False / Not sure)
13. Mechanical circulation is one of the critical service for 70.00 Mt. tall residential building. (True / False / Not sure)
14. Acoustics is one of the critical service for TV studio. (True / False / Not sure)
15. Fire-fighting is one of the least critical service for Auditorium having 1000, seat capacity. (True / False / Not sure)

**2 Short Question, attend any Five (05) 10**

1. 'Net-Zero Building Design' concept.
2. Measures to reduce 'Carbon Foot-print' of any building through 'Design'.
3. Points to consider, to achieve 'Platinum Rating' in LEED. (minimum 04)
4. Key-differences between LEED rating v/s GRIHA rating. (minimum 04) ;
5. Importance of 'Rainwater Harvesting' for water scarce region.
6. Methods of recycling 'Waste water' to make it 'Usable water'.
7. Benefits of using 'Alternate Energy' in Architecture.
8. Methods of reducing 'Unwanted Sound' in Auditorium for good-hearing.

**3 Long Question, attend any Three (03) 15**

1. Attributes of 'Climatic Design' for G+2 floor Row-house type private residence, to be designed in Bhuj (Hot & Dry climate).
2. Attributes of 'Climatic Design' for G+1 floor Tenement type private-residence having central court-yard, to be designed in Kochi (Warm & Humid climate).
3. Attributes of 'Universal Access Design' for 40.00 Mt. tall Public Building.

4. Attributes of 'Natural Light Design' for G+2 floor Public Library having open space in all sides, located in Bengaluru (Moderate climate).
5. Attributes of 'Acoustics Design' for Music Studio having Four (04) Recording spaces.

**4** Descriptive Question, attend any One (O1) **15**

1. Discuss the integration of 'HVAC Service with Design & Structure' for 70.00 Mt. tall building of your choice - Hospital or Hotel or Mall.
    - Assume appropriate data, as required.
    - Explain your understanding with neat & clear drawings & sketches.
  2. Discuss the integration of 'Passive & Active Fire-fighting Service with Design & Structure' for 70.00 Mt. tall building of your choice - Hospital or Hotel or Mall.
    - Assume appropriate data, as required.
    - Explain your understanding with neat & clear drawings & sketches.
-