Seat No. _____

HAD-161001010406

B. Arch. (Sem. IV) Examination

May - 2023

Environmental Science & Services - II

Time : **2** / 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. Which direction is considered to be the `Best direction' for receiving `Constant & Uniform Daylight' in Rajkot-North or West?
2. `Overcast / Cloudy Sky' will not offer best `Daylight' -True or False.
3. Which type of `Opening' will allow more 'Daylight' to penetrate in room Wider opening or longer opening?
4. `LED' light has longer life, in compare of `CFL' light fixture - True or False.
5. What is to be used for precaution against `Earth Leakage' - MCB or ELCB.
6. Air-Conditioner must have _____ ampere electric supply. (5 / 15 / 25)
7. `Bathroom Switchboard' should be at _____ Mt. height. (2.10 / 1.50 / 1.00)
8. Water required for `Per Person Per Day' is _____ liters. (75 / 150 / 225)
9. Pipe used for 'End-point water supply' in residential building, generally has diameter of _____ mm. (12 / 25 / 50)

10. What diameter of pipe is appropriate for `Waste water supply', in case of small residence - 50 mm or 150 mm?

11. `Potable water' required for `Per Person Per Day' is _____ liters. (3 / 6 / 9)

12. Minimum width of `Main Stair' for 70 Mts. high building must be _____ Mts. (1.00 / 1.50 / 2.00)

13. Discontinuing the Oxygen supply can't stop the active fire - True or False.

14. Smoke detectors are 'Electric Nose' for 'Fire- Detection' - True or False.

15. What is appropriate `Slope' for rainwater clearance on terrace - 1:50 or 1:200?

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

1. Discuss the concept of `Constant & Uniform Natural / Day-light'.

2. Which type of `Opening' is better for `Living room' to receive maximum `Daylight' - 'Tall/Vertical opening' or 'Wide/ horizontal opening'. Justify your opinion with minimum Two (02) supportive points.

3. Discuss the importance & relevance of `Ambient Light and Task Light' for private residence.

4. Justify the statement- `Functional lighting and aesthetical lighting, both are essential and important for residence', with respect of artificial lighting'.

5. Importance of `Dry Fixtures' in Bathroom of private residence. Explain any Two (02) such fixtures in detail.

6. Benefits of using `PVC Pipes' for Plumbing & Drainage system.

7. Importance of `Passive Safety Aspects of Fire-Fighting & Protection' for 15.00 Mt. tall Public building.

8. Explain the role of `Sprinklers, Smoke detectors, and Fire-Alarms', in `Active Fire-Fighting' system.

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

1. Discuss the ,Importance of Orientation' with respect to 'Daylight & Natural Lighting' and explain the same for Residential building.
2. Discuss the `Components of Electrification System' for functional & aesthetical lighting, for Residential building.
3. 'Water-Tank' and 'Septic-Tank' as 'Cast-In-Situ' component of plumbing & drainage system of residence.
4. Discuss the importance of `Active Safety Aspects' for Auditorium building and elaborate different method & systems for the same.

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

1. Design the `Bathroom' by considering the `Criteria of Good Bathroom Design':
   - Bathroom (having 2.40 Mt. width X 3.00 Mt. depth X 3.00 Mt. height); having sunken slab, located on intermediate floor of Residential building
   - Bathroom must have Wash-basin, European W.C., Bath-tub or showercubical, along with other essential-supportive `Dry Fixtures', as required.
   - Assume other relevant data as suitable i.e. masonry, opening, ventilation, pipe inlets & outlets, etc., as applicable
   - Illustrate your design with neat & appropriate drawings / sketches
2. Design the `Automatic, Fix, Water-based Fire-fighting system' for 70.00 Mts. tall Residential High-rise. Discuss relevant design criteria for the system, such as :
   - Location / placement,of service components i.e. Water-storage tanks (in ground and on terrace), Water-pumps, Rising main pipes, Hose-reel and Nozzles, Water sprinkling system, Smoke detection system, Alarm system, etc.
   - Size, dimension and capacity of such service components
   - Material and construction -structure system, etc. ...which an architect must keep in mind to design the building and service

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