



22604

12223

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define HVAC system.
- (b) Enlist the responsibilities of building service engineer.
- (c) Enlist two objectives and two modes of vertical communication in building.
- (d) Enlist any four components of escalators.
- (e) Explain the causes of fire in building.
- (f) Define smart building.
- (g) Name any four fire extinguishing system.

2. Attempt any THREE of the following :

12

- (a) Explain safety precautions used for installation of lift.
- (b) Explain the need of fire protection system for multi storeyed buildings.
- (c) Define intake and enlist any three types of intakes.
- (d) State the provisions for evacuation in case of fire emergency.



3. Attempt any THREE of the following : 12

- (a) Draw a neat labelled sketch of Gully trap and state its location.
- (b) Define rain water harvesting and give its advantages.
- (c) Explain the working of flat plate collectors with neat sketch.
- (d) Define the system of solar water heating :
 - (i) Active
 - (ii) Passive
 - (iii) Direct
 - (iv) Indirect

4. Attempt any THREE of the following : 12

- (a) Enlist any four acoustic materials and state their suitability.
- (b) Explain the natural ventilation.
- (c) Explain electric discharge lamps and enlist any three lamps with their suitability.
- (d) Explain any two methods of recharging subsurface aquifers.
- (e) Explain any four factors affecting selection of artificial lighting.

5. Attempt any TWO of the following : 12

- (a) Suggest any six specifications for the elevator in residential building.
- (b) Suggest, with suitability, any six fire resisting materials for the fire resistant construction.
- (c) Differentiate between lifts and escalators.

6. Attempt any TWO of the following :**12**

- (a) Suggest the location and function of each of the following valves used in plumbing :
- (i) Pressure relief valve
 - (ii) Reflux valve
 - (iii) Gate valve
- (b) Draw a neat and labelled sketch of Sand filter and Charcoal water filter.
- (c) Compare one pipe system and two pipe system along with a neat labelled sketch of each system.
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