

March 2023

**BUILDING SERVICES AND MAINTENANCE**

Time Allowed: 2.5 Hours

Full Marks: 60

**Answer to Question No. 1 of Group A is compulsory and to be answered first. This answer is to be made in separate loose script(s) provided for the purpose. Maximum time allowed is 30 minutes, after which the loose answer scripts will be collected and fresh answer scripts for answering the remaining part of the question will be provided. On early submission of answer scripts of Question No. 1, a student will get the remaining script earlier. Answer any Five (05) Questions from Group B.**

**Group A**

1. Choose the correct answer from the given alternatives (any twenty): 1x20
- i) The material of pipe generally used in India for conveying drinking water is—  
(a) lead, (b) copper, (c) plastic, (d) cast iron.
  - ii) The type of joint in CI pipes mostly used for temporary pipelines where it may be necessary to dismantle and reassemble the pipeline is : (a) Flanged, (b) Collar, (c) Expansion, (d) Bell-and-spigot.
  - iii) Collar Joint is most suitable for jointing— (a) Cast iron pipes, (b) Steel pipes, (c) PVC pipes, (d) Cement concrete pipes.
  - iv) A fixture which allows water in a pipe to flow in one direction only is called— (a) Sluice valve, (b) Scour valve, (c) Reflux valve, (d) Air valve.
  - v) A device provided in the water distribution system through which water can be drawn in case of fire is called— (a) Drain valve, (b) Hydrant, (c) Check valve, (d) Sluice valve.
  - vi) The pipe through which liquid carrying human excreta flows, is called— (a) Waste pipe, (b) Soil pipe, (c) Vent pipe, (d) Rainwater pipe.
  - vii) In two-pipe system of plumbing the discharge from the waste pipe must be disposed in the house drain through— (a) An inspection chamber, (b) A gully trap, (c) An intercepting trap, (d) All of above.
  - viii) The members which support the lift equipment at the top of the lift well is (a) Suspension ropes (b) Lift well (c) Lift overhead beams (d) Guide rails.
  - ix) Which type of lifts are suitable for the transport of stretchers, furniture etc? (a) Small lift, (b) Medium lift, (c) Large lift, (d) None of the above.
  - x) Occupant Load = Gross Area/Person. This Gross area is measured in (a)  $cm^2$  (b)  $decimetre^2$  (c)  $metre^2$  (d) None of the above.
  - xi) For Residential building, passenger handling capacity of lift is usually (a) 10%, (b) 7.5% (c) 15% (d) 25%.
  - xii) Laboratories, research establishments, libraries and test houses are categorised as (a) E-1, (b) E-2, (c) E-3, (d) E-4.

- xiii) Fire Zone 3 includes- (a) Residential, Educational & Institutional Buildings, (b) Ordinary Industrial & high Business Buildings, (c) All types of high hazard buildings and Storage Buildings, (d) None of the above.
- xiv) Fire Zone 1 include (a) Residential, Educational & Institutional Buildings, (b) Assembly, small Business and Retail Mercantile Buildings, (c) Ordinary Industrial & high Business Buildings, (d) Both (a) and (b).
- xv) In Dry Riser system, the dry rising mains should not exceed \_\_\_\_\_ to avoid excessive pumping pressure - (a) 10 m, (b) 20 m, (c) 30 m, (d) 60 m.
- xvi) A firewall is a \_\_\_\_\_ barrier used to prevent the spread of fire for a prescribed period of time. (a) Fire Resistance, (b) Fire Extinguishers, (c) Fire Stop, (d) None of these.
- xvii) All stairs, ladders and landings used for fire exits should be provided with robust, non-combustible hand rails at a height not less than (a) 50 cm, (b) 100 cm, (c) 150 cm, (d) 200 cm.
- xviii) External staircase, used as a fire escape, should not be inclined at an angle greater than (a) 15°, (b) 30°, (c) 45° (d) 60° from the horizontal. <https://www.wbscteonline.com>
- xix) The general temperature difference between inside and outside is kept not more than (a) 8°C (b) 18°C (c) 80°C (d) 0°C
- xx) The relative humidity of saturated air is (a) 180%; (b) 100%; (c) 0%; (d) None of the above.
- xxi) Spray washers can remove as much as (a) 35%, (b) 50%, (c) 65%, (d) 80% dust from the air.
- xxii) The illumination level for warehouses is \_\_\_\_\_ lux. (a) 50, (b) 100, (c) 150, (d) 200.
- xxiii) The source of light inside a building are (a) direct or diffused skylight; (b) internally reflected light; (c) externally reflected light; (d) All of the above.
- xxiv) Telephone Exchanges are categorised as (a) E-1, (b) E-2, (c) E-3, (d) E-4.
- xxv) Fire exit doorways should not be less than \_\_\_\_\_ in height. (a) 1000 m, (b) 1500 mm, (c) 2000 mm, (d) none of these.

### Group B

2. a) Define Plumbing.  
b) What are the duties of a licensed plumber? 2+6
3. State the classification of building, according to the National Building Code of India based on occupancy. 8
4. a) Define Plumbing.  
b) What are the duties of a licensed plumber? 2+6
5. Define the following terms: (any four) 2x4  
(i) Lift pit, (ii) Lift well, (iii) Lift car, (iv) Lift machine, (v) Lift suspension ropes, (vi) Call indicator
6. a) Describe different safety measures of Lifts.  
b) Why buffers are used in the lift pit? 6+2

7. a) **State the causes of fire in a building.**  
b) **Write short notes for the following: (i) Fire Wall, (ii) Fire lift.** 5+3
8. **With neat sketches, briefly describe the following pipe joints - (i) Collar joint, (ii) Expansion joint.** 4+4
9. a) **Define Valves.**  
b) **State the classification of Valves used in a pipeline.** 2+6
10. a) **Write down the necessity of ventilation.**  
b) **What are the aims of good lighting?** 4+4
-