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MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B. DES. (ID) DEGREE EXAMINATION – NOVEMBER 2019

SUBJECT: BID 211 – BUILDING SERVICES – I
(2015 SCHEME)

Monday, November 25, 2019

Time: 10:00 – 13:00 Hrs.

Max. Marks: 50

- ✍ Question Number 1 is compulsory.
- ✍ Attempt any FOUR out of Question Numbers 2, 3, 4, 5 and 6.
- ✍ Support your answers with neat sketches wherever required.

1. Explain the Water supply and Plumbing Network for a Residential toilet layout with the help of neat sketches. Assume suitable data wherever required.

The toilet layout should represent in plan and section with the following components and support with a legend:

- a) Cold water supply from OHT
- b) Hot water Supply
- c) Flushing water supply
- d) Legend to show Plumbing pipes and traps
- e) Sanitary fittings with appropriate dimensions and specifications

(2 marks × 5 = 10 marks)

2. Explain the following terminologies with the help of neat sketches:

- a) Self-Cleansing Velocity
- b) Conveyance
- c) Ferrule
- d) Sump (Underground tank)
- e) Reflux Valve

(2 marks × 5 = 10 marks)

- 3A. What are Storm Water Inlets? Explain any two different types of Inlets with the help of neat sketches.

- 3B. What is Rain Water Harvesting? Explain Roof water harvesting with the help of neat sketches.

((1+4)+(1+4) = 10 marks)

4. What is Air conditioning? What are the different types of air conditioners along with sketches?

(2+8 = 10 marks)

5. **Write short notes on:**

- 5A. Vapour Absorption refrigeration
- 5B. Air based cooling system
- 5C. Water based cooling system
- 5D. Variable air volume system

(2½ marks × 4 = 10 marks)

6. **Elaborate on the following:**

- 6A. Sprinklers
- 6B. Fire Alarm System
- 6C. Refuge Area
- 6D. Fire Escape

(2½ marks × 4 = 10 marks)

