

Course outline

How does an NPTEL online course work?

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week 8

- Lecture 42 : Basics of Water Distribution System
- Lecture 43 : Water Distribution Networks
- Lecture 44 : Analysis of Water Distribution Networks
- Lecture 45 : Problems on Pipe Flow and Water Distribution Network
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Detailed Assignment Solution

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# Assignment 8

The due date for submitting this assignment has passed. **Due on 2020-03-25, 23:59 IST.**  
 As per our records you have not submitted this assignment.

- 1) Which of the following non-potable water demands are not usually provided by municipal water distribution systems? 1 point
- a. Fire demand
  - b. Demand for public uses
  - c. Irrigation for large agricultural fields
  - d. Commercial demand
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 c
- 2) Which of this number could be appropriate for delivery head (pressure, in m) for consumer connections in water distribution network? 1 point
- a. 05 m
  - b. 15 m
  - c. 45 m
  - d. 75 m
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 b
- 3) What is the major advantage of the radial water distribution system layout? 1 point
- a. Less headloss through pipes
  - b. Easy pipe calculations
  - c. Easy to maintain required pressure
  - d. All of the above
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 d
- 4) Major head-loss in a pipe flow depends on: 1 point
- a. Pipe material and it's roughness
  - b. The flow velocity and the viscosity of the fluid
  - c. The pipe diameter and it's length
  - d. All of the above
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 d
- 5) Darcy-Weisbach equation is used to find loss of head due to \_\_\_\_\_ 1 point
- a. Sudden enlargement
  - b. Sudden contraction
  - c. Friction
  - d. None of the above
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 c
- 6) In case of pipe flow, the minor losses depend on \_\_\_\_\_ 1 point
- a. Length of the pipeline
  - b. Friction of the internal pipe surface
  - c. Fittings like valves, bends, entry, exit etc.
  - d. All of the above
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 c
- 7) Which of the following statements are true for Hazen-William's constant? 1 point
- (i) Hazen William's friction coefficient indicates the roughness of the interior surface of pipes
  - (ii) Hazen William's friction coefficient is constant for a pipe, depending on its age and pipe material.
  - (iii) Lower values of Hazen William's friction coefficient means higher headloss in the pipe
- a. Only (i) is true
  - b. Both (ii) and (iii) is true
  - c. Both (i) and (iii) is true
  - d. All three statements are true
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 d
- 8) The basic principle followed for the analysis of pipe network, include: 1 point
- a. The flow entering a junction must be equal to the flow leaving that junction
  - b. Head-loss in each individual pipe must be zero
  - c. Both, (a) and (b)
  - d. Neither (a) nor (b)
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 a
- 9) The difference between Total Energy Line (TEL) and Hydraulic Gradient Line (HGL), at any section of a pipe, is equal to: 1 point
- a. Pressure head available at the section
  - b. Elevation at the section with reference to datum
  - c. Velocity head at the section
  - d. Sum of the pressure head and datum head at the section
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 c
- 10) Analysis of water distribution networks usually require: 1 point
- a. Estimation of water demands at each nodes
  - b. Estimation of discharge and head-loss in each pipes for given nodal demands
  - c. Estimation of ESR capacities in the network for given water demand from the service area
  - d. All of the above
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 b
- 11) In a pipe of diameter 350 mm and length 75 m, water is flowing at a velocity of 2.8 m/s. Find the headloss due to friction in the pipe using Darcy-Weisbach formula. (Assume coefficient of friction as 0.00263. Friction factor is taken as 4 times the coefficient of friction). 1 point
- 
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 (Type: Range) 0.8,1.0
- 12) A piping system consists of three pipes **arranged in series**, of lengths 1200m, 750m and 600m and diameters 750mm, 600mm and 450mm. Determine the equivalent diameter of the pipe (in mm). 1 point
- a. 656 mm
  - b. 0.054 mm
  - c. 540 mm
  - d. 557.8 mm
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 d
- 13) The hydraulic nature of flow having water (viscosity  $1.14 \times 10^{-3}$  kg/ms, and density  $1000$  kg/m<sup>3</sup>) flowing through a circular pipe of diameter 100 mm at an average velocity of 2.4 m/s, would be: 1 point
- a. Laminar flow
  - b. Transitional flow
  - c. Turbulent flow
  - d. Can't be established based on the given information
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 c
- 14) A horizontal pipe carries water at the rate of 0.04 m<sup>3</sup>/s. The diameter of the pipe of 300 mm reduces abruptly to 150 mm. Determine the headloss due to contraction (in m). Take coefficient of contraction as 0.62. 0 points
- a. 1.0101 m
  - b. 0.0101 m
  - c. 1.614 m
  - d. 0.1614 m
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 d
- 15) In the previous problem, find the pressure loss across the contraction (in kN/m<sup>2</sup>). 0 points
- a. 5.65 kN/m<sup>2</sup>
  - b. 3.98 kN/m<sup>2</sup>
  - c. 1.02 kN/m<sup>2</sup>
  - d. 5.65 kN/m<sup>2</sup>
- a  
 b  
 c  
 d
- No, the answer is incorrect.  
 Score: 0  
 Accepted Answers:  
 b