Course outline

How does an NPTEL online course work?
Week 0
Week 1
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Week 3
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- Lecture 21 : Distribution System Layout
- Lecture 22 : Conveyance of water Part I
- Lecture 23 : Conveyance of water Part II
- Lecture 24 : Pipes, Joints, Meters and SCADA Systems
- Lecture 25 : Distribution Network Design
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Week 5 : Assignment 5

The due date for submitting this assignment has passed.

Due on 2021-09-01, 23:59 IST.

As per our records you have not submitted this assignment.

1) The carrying capacity of water distribution pipes directly depends on: *1 point*

A. Size of pipe
B. Velocity of flow
C. Pipe material
D. Thickness of pipe

a. A, B, C, D
b. A, B
c. A, B, C
d. A, B, D

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

2) Leakage of water in the distribution system can be detected using: *1 point*

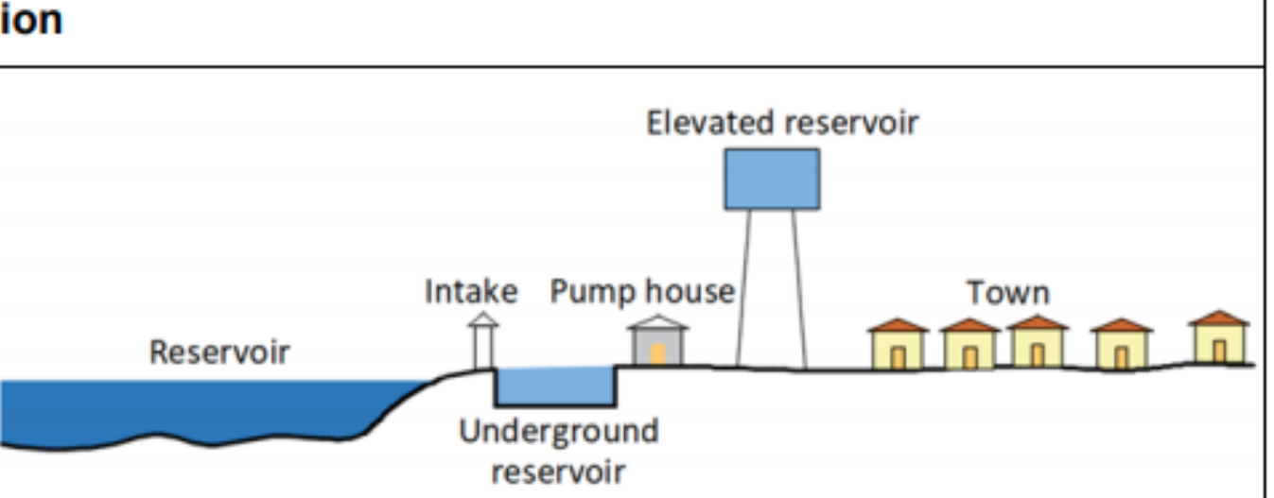
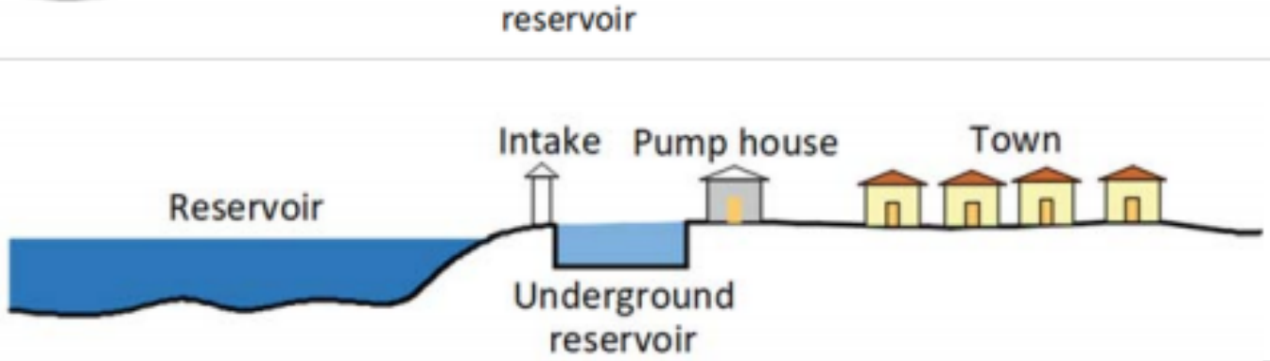
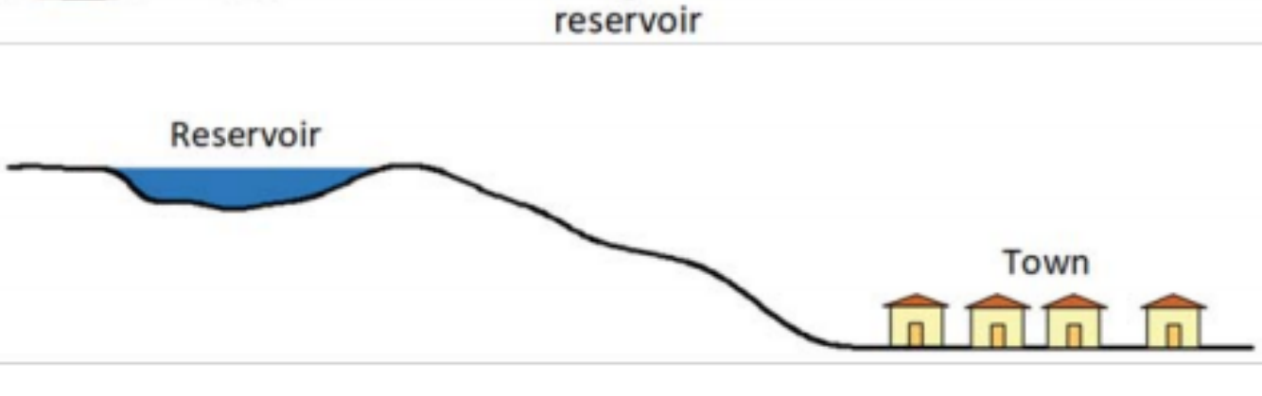
A. Water meters
B. Stress meter
C. Hydraulic gradient line plotting
D. Flow analysis equipment

a. A, B, C, D
b. A, C
c. A, B, C
d. A, C, D

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

3) Match the following and mark the option for the correct match. *1 point*

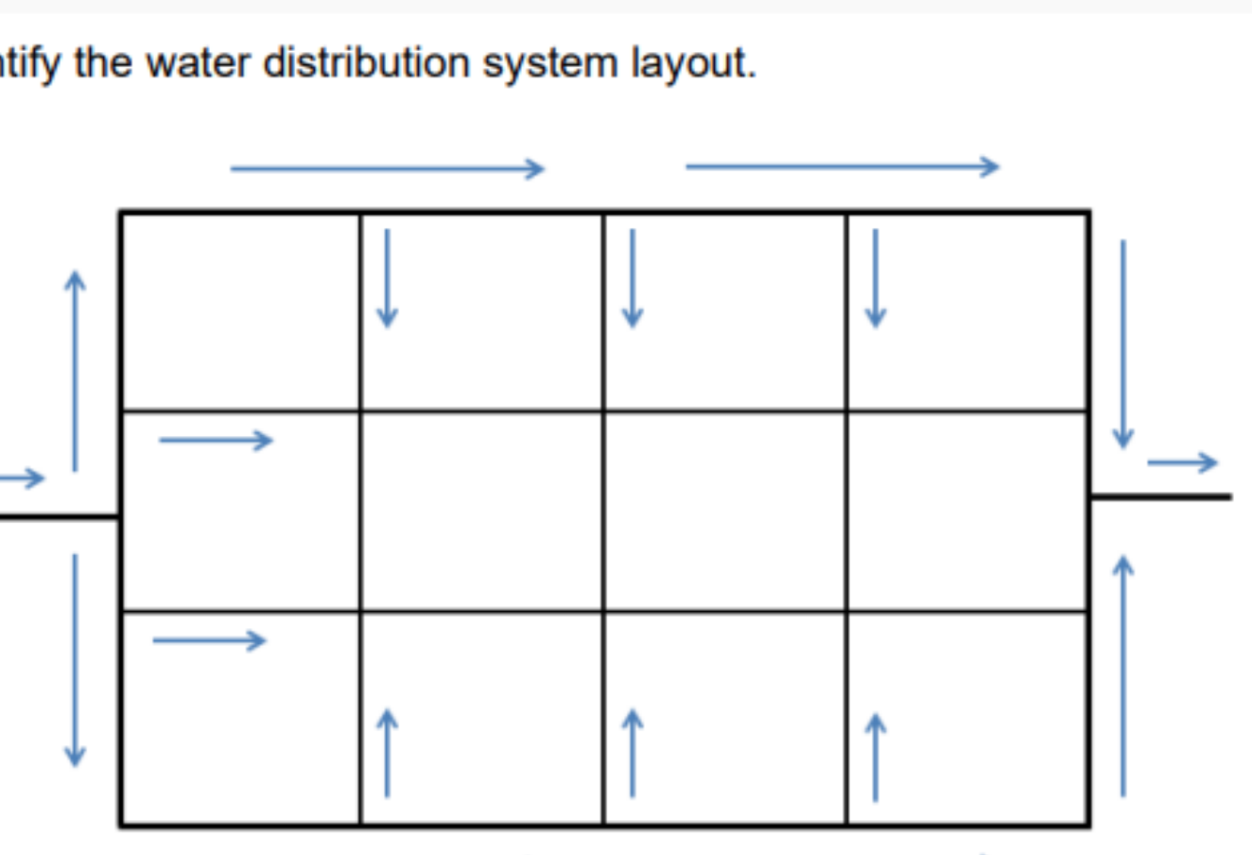
Water distribution system	**Illustration**
P. Gravity system	I. 
Q. Dual system	II. 
R. Pumping system	III. 

a. P-III; Q-II; R-I
b. P-I; Q-II; R-III
c. P-III; Q-I; R-II
d. P-I; Q-III; R-II

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

4) Identify the water distribution system layout. *1 point*



a. Ring system
b. Interlaced system
c. Dead-end system
d. Radial system

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

5) The EPANET software can be used for the analysis of: *1 point*

A. Leakage of water in pipes
B. Pressure of water at each node
C. Concentration of residual chlorine in water
D. Height of water in elevated reservoirs

a. B, D
b. A, C
c. B, C, D
d. A, B, C, D

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

6) Which statement among the given statements is incorrect? *1 point*

a. Helium is used to detect water leakage in the distribution system.
b. Water pipes laid in parallel induce the same head loss in each pipe.
c. Velocity of water in the pipe is inversely proportional to the hydraulic radius of the pipe.
d. Hazen William's formula incorporates the frictional properties of pipe material.

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

For a city with a population of 10 lakh and a water consumption rate of 200 litres/capita/day, water needs to be supplied.
Flow velocity of water in pipes is 1.6 m/sec
Coefficient of hydraulic capacity is 130
Maximum daily demand is 1.8 times the average daily demand

Answer QUESTION 7 and 8 based on the given data.

7) The diameter (in meters) of supply pipes leading to an adequate service reservoir is *2 points*

a. 0.91 m
b. 1.82 m
c. 2.25 m
d. 3.64 m

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

8) Determine the hydraulic gradients of pipe using Hazen William's formula. *2 points*

a. 0.0098%
b. 0.098%
c. 0.98%
d. 9.8%

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

9) A water supply scheme needs to be designed for a city with a population of 15 lakhs. The average water demand is 220/capita/day. The maximum daily demand is 1.8 times the average daily demand and the pumping is to be done in two-8 hour shifts. The distance of the storage reservoir from the city is 20 km and the head loss from source to the city is 30 m. Determine the size of the supply main using Darcy-Weisbach formula (assume f'= 0.012 and g = 9.8 m/s²). *2 points*

a. 6.65 m
b. 4.68 m
c. 2.34 m
d. 1.17 m

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

10) The circumferential stress in water pipes created by internal pressure is called as: *1 point*

a. Hoop stress
b. Flexural stress
c. Torsional stress
d. Bending stress

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

11) The pipe materials that are commonly used now in water distribution lines are *1 point*

A. Glass Reinforced Plastic (GRP)
B. Polyvinyl Chloride (PVC)
C. High Density Poly Ethylene (HDPE)
D. Asbestos Cement (AC)

a. A, B, C, D
b. A, B, C
c. B, C, D
d. A, B, D

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

12) The data required for water distribution network design include: *1 point*

A. Population characteristics
B. Water demand
C. Topography
D. Landuse characteristics

a. A, B, C, D
b. A, B, C
c. B, C, D
d. A, B, D

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
a.

13) The complex looped network of water distribution can be analysed using: *1 point*

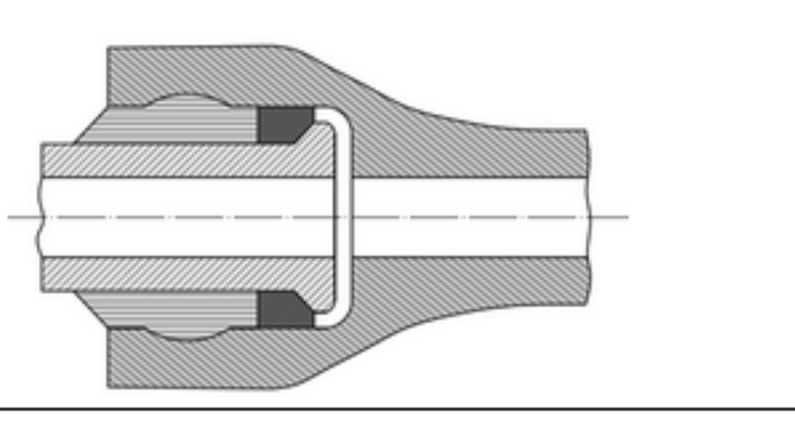
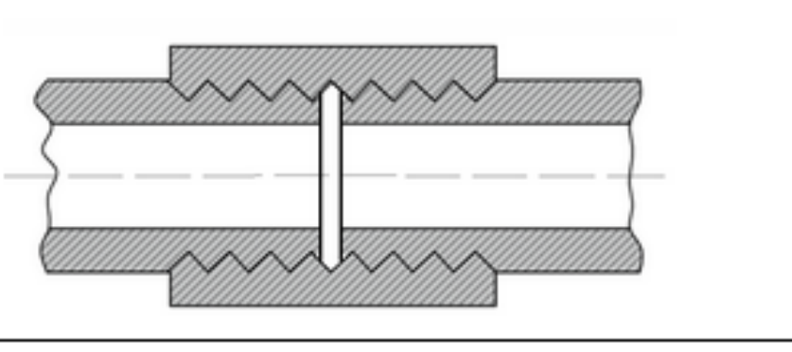
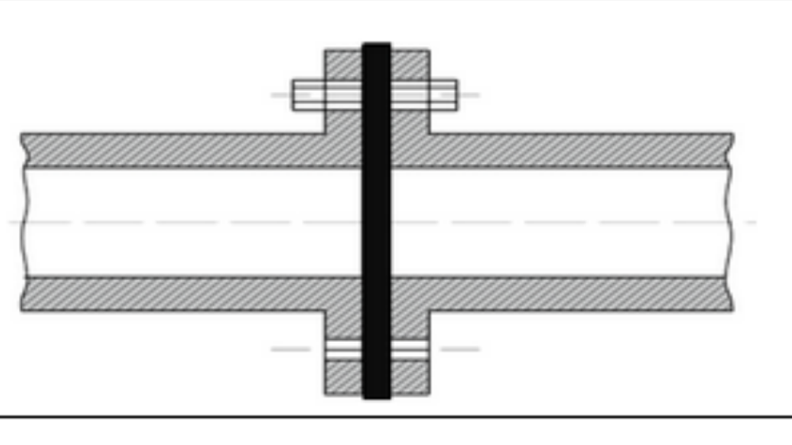
A. Equivalent pipe method
B. Newton-Raphson method
C. Linear theory approach
D. Hardy-cross method

a. A, B, C, D
b. A, B, C
c. B, C, D
d. A, B, D

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.

14) Match the following and mark the option for the correct match. *1 point*

Types of joints for water pipes	**Illustration**
P. Screwed joint	I. 
Q. Flanged joint	II. 
R. Spigot and socket joint	III. 

a. P-III; Q-II; R-I
b. P-I; Q-II; R-III
c. P-II; Q-I; R-III
d. P-II; Q-III; R-I

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

15) ________________ are used to determine the volumetric flow of water directly from its velocity. *1 point*

a. Rotary piston meters
b. Electro-magnetic meters
c. Ultrasonic meters
d. Inferential meters

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
d.

16) _________________ has the least coefficient of thermal expansion. *1 point*

a. UPVC pipes
b. Concrete pipes
c. Cast iron pipes
d. HDPE pipes

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
b.

17) Chezy's formula for open channel flow does not consider: *1 point*

a. Hydraulic mean depth
b. Slope of the pipe
c. Length of the pipe
d. Area of flow

○ a.
○ b.
○ c.
○ d.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c.