

Unit 6 - week 4

Course outline	
How does an NPTEL online course work?	
week 0	
week 1	
week 2	
week 3	
week 4	<ul style="list-style-type: none"> <input type="radio"/> Lecture 18:Raw Water Storage <input type="radio"/> Lecture 19: Treated Water Storage <input type="radio"/> Lecture 20: Placement, Design and Construction of Storage Reservoirs <input type="radio"/> Lecture 21: Practice Problems on Reservoir Capacity Estimation <input checked="" type="radio"/> Lecture Material <input type="radio"/> Quiz : Assignment 4 <input type="radio"/> Week 4 Feedback Form
week 5	
week 6	
week 7	
week 8	
week 9	
week 10	
week 11	
week 12	
Detailed Assignment Solution	
Download Videos	
Live Interactive Session	

Assignment 4

The due date for submitting this assignment has passed. Due on 2020-02-26, 23:59 IST.
As per our records you have not submitted this assignment.

- 1) Match the storage structures with their suggested location within the water supply system 1 point

1. Large Impounding Reservoir	A. At water treatment plant (before pumping to the distribution system)
2. Clear Water Tank	B. Just before the distribution network to supply area
3. Service Reservoir	C. Within the distribution network
4. Intermediate balancing tanks	D. Before intake

a. 1-B; 2-D; 3-A; 4-C
 b. 1-D; 2-B; 3-A; 4-C
 c. 1-A; 2-D; 3-C; 4-B
 d. 1-D; 2-A; 3-B; 4-C

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: d.
- 2) In off-line raw water storage reservoirs, bottom lining is generally provided: 1 point

a. To prevent losses due to infiltration
 b. To reduce losses due to evaporation
 c. To allow suspended materials in water to settle at bottom
 d. To ensure easy removal of settled sediments in the tank

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 3) For water supply systems, treated water storage is mainly needed for: 1 point

a. Reducing the water demand
 b. Ensuring adequate water supply during peak demands and emergencies
 c. Further improving quality of water before supply
 d. All of the above

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: b.
- 4) Which of the following statements are true regarding sediment management of reservoirs? 1 point

i. Preventive measures of sediment control in reservoirs are typically more expensive than remedial measures.
 ii. Reservoir intakes can be modified to handle incoming sediment load, as part of adaptive sediment management strategy.
 iii. Mechanical excavation is an effective method of routing sediments from being deposited in reservoirs

a. Only ii. and iii. are true
 b. Only i. is true
 c. Only i. and ii. are true
 d. all the statements are true

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: c.
- 5) _____ is provided in service reservoirs to meet the fluctuations in daily demand and operate at a constant rate. 1 point

a. Emergency storage
 b. Equalizing storage
 c. Operating storage
 d. Dead storage

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: b.
- 6) The total volume of a service reservoir is equal to: 1 point

a. Effective volume + Operational storage + Dead storage
 b. Operational storage + Emergency storage + Dead storage
 c. Effective volume + Emergency storage + Dead storage
 d. Effective volume

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 7) In a plain region, service reservoirs in a water distribution network are most optimally located when they are: 1 point

a. At the center of demand
 b. At the point of highest elevation
 c. Near to the farthest consumer nodes
 d. Near to the treatment facility

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 8) Which of the following can help in controlling (or reducing the chances of) growth of disinfectant by-products in service reservoirs? 1 point

a. Maintaining plug flow in reservoirs
 b. Ensuring longer storage duration
 c. Adding chlorine to service reservoirs
 d. All of the above

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 9) Under what conditions a service reservoir can act as an effective pressure reducing device in the distribution network? 1 point

a. When water is sourced from significantly higher altitudes
 b. When the distribution area is nearly flat
 c. When the distribution region is at hill top and water source is at lower altitudes
 d. None of the above

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 10) After construction, service reservoirs must be tested for: 1 point

a. Structural strength against seismic loads
 b. Ability to sustain water pressure
 c. Water tightness and no leakage
 d. All of the above

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: c.
- 11) Volume of reservoir required for a water distribution network can generally be reduced by: 1 point

a. Increasing the number of supply hours
 b. Decreasing the number of supply hours
 c. Increasing the pressure at supply line
 d. Decreasing the pressure at supply line

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 12) In the Hydrograph method of reservoir capacity estimation, the storage capacity is estimated by determining the _____. 1 point

a. Area between the supply and demand lines
 b. Total area under the supply curve
 c. Total area under the demand curve
 d. Peak value of the demand curve

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 13) If 'A' is the maximum positive value of (cumulative demand - cumulative supply), and 'B' is the maximum positive value of (cumulative supply - cumulative demand) over a period of one day, the required storage capacity of a distribution reservoir should be equal to: 1 point

a. Whichever is greater between A and B
 b. A
 c. B
 d. A + B

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: d.
- 14) A raw water reservoir of 4500 million liters (ML) total capacity, is 9 m deep and has the average rate of seepage and evaporation losses as 0.8 mm/d and 1.5 mm/d. The annual water losses from the reservoir would be: 1 point

a. 150 ML
 b. 275 ML
 c. 350 ML
 d. 420 ML

a.
 b.
 c.
 d.

No, the answer is incorrect.
Score: 0
Accepted Answers: d.
- 15) In the raw water reservoir of Question No. 14, consider the bottom 1.5 m depth served as dead storage. Once completely filled, for approximately how many days reservoir would be able serve 24 MLD daily demand of a city? 1 point

a. 50 days
 b. 100 days
 c. 150 days
 d. 200 days

a.
 b.
 c.
 d.

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

Statement for Question No 16-20:

An elevated service reservoir (ESR) requires to supply water to a city of 2.5 lakhs population and an estimated water usage of 160 L per head per day. The pumping is planned at uniform between 6 a.m. to 10 p.m. The variation in demand is as follows:

00 a.m. to 06 a.m. – 05 % of the total
 06 a.m. to 10 a.m. – 40 % of the total
 10 a.m. to 02 p.m. – 15 % of the total
 02 p.m. to 06 p.m. – 10% of the total
 06 p.m. to 10 p.m. – 25% of the total
 09 p.m. to 00 a.m. – 05% of the total

- 16) The cumulative daily demand (in million liters) for the city is: 1 point

No, the answer is incorrect.
Score: 0
Accepted Answers: (Type: Range) 37,43
- 17) The hourly pumping rate (in million liters / hour) for uniform pumping between 06 a.m. to 10 p.m. would be: 1 point

No, the answer is incorrect.
Score: 0
Accepted Answers: (Type: Range) 2,2.5
- 18) Following Mass Curve Method, the estimated maximum excess of daily demand (in million liters) is: 1 point

No, the answer is incorrect.
Score: 0
Accepted Answers: (Type: Range) 7,9
- 19) Following Mass Curve Method, the estimated maximum excess of daily supply (in million liters) is: 1 point

No, the answer is incorrect.
Score: 0
Accepted Answers: (Type: Range) 1,3
- 20) Following Mass Curve Method, the total balancing storage (in million liters) required in ESR is: 1 point

No, the answer is incorrect.
Score: 0
Accepted Answers: (Type: Range) 8,12