

Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

- Lecture 56 : Ground water Recharge Part 1
- Lecture 57 : Ground water Recharge Part 2
- Lecture 58 : Urban flood management and drainage plans Part 1
- Lecture 59 : Urban flood management and drainage plans Part 2
- Lecture 60 : Urban flood management and drainage plans Part 3
- Week 12 Lecture Material
- Quiz: Week 12 : Assignment 12
- Week 12 Feedback Form

Detail Solution

Live Interactive session

Week 12 : Assignment 12

The due date for submitting this assignment has passed. Due on 2021-10-20, 23:59 IST.

As per our records you have not submitted this assignment.

1) Which factor(s) affect the suitability of artificial groundwater recharge areas? 1 point

- A. Frequency of rainfall events
 B. Infiltration capacity of soil
 C. Suitability of aquifer systems for artificial recharge
 D. Geological formations of soil

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

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 b.

2) Sub-surface water storage capacity for artificial recharge depends on: 1 point

- A. Water table contours
 B. Depth to water level during the post-monsoon period
 C. Suitability of aquifer systems for artificial recharge
 D. Thickness of unsaturated material available above the water table in the unconfined aquifer

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

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 a.

3) Identify the correct function notation for the volume of water required for artificial recharge. 1 point

- a. $Volume = Volume\ of\ subsurface\ storage * Recharge\ efficiency$
 b. $Volume = \frac{Intercontour\ areas\ below\ cut-off\ level * Specific\ yield}{Recharge\ efficiency\ of\ structure}$
 c. $Volume = Intercontour\ areas\ below\ cut-off\ level * Specific\ yield * Recharge\ efficiency$
 d. $Volume = Volume\ of\ subsurface\ storage * Specific\ yield * Reciprocal\ of\ recharge\ efficiency$

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 b.

4) Which statement/s is/are correct among the given statements regarding groundwater recharge? 1.5 points

- A. Artificial recharge reduces soil erosion, flood and ensures adequate soil moisture.
 B. Piezometric surface is lowered during artificial recharge of groundwater.
 C. Artificial recharge can be achieved by artificially changing natural conditions
 D. Artificial recharge increases inundation.

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

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 c.

5) Match the following and mark the option for the correct match. 1.5 points

Term	Artificial groundwater recharge technique
P. Ditch and Furrows	I. Aquifer modification
Q. Gully plugs	II. Sub-surface Techniques
R. Gravity Head Recharge Wells	III. Surface spreading technique
S. Bore Blasting	IV. Runoff conservation structure

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

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 a.

6) Which statement/s is/are incorrect about recharge basins? 1 point

- A. Intermittent streams help to increase contact time and reduce suspended particles.
 B. They should have a gentle slope with diagonally placed entry and exit points.
 C. They should be constructed perpendicular to intermittent streams.
 D. Rate of inflow into the recharge basin should be less than the infiltration capacity of the basin.

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

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 d.

7) Match the following and mark the option for the correct match. 1.5 points

Term	Description
P. Contour bunds	I. Can recharge multiple aquifers
Q. Percolation tanks	II. Recharge via infiltrating through the vadose zone
R. Injection wells	III. Embankments of land along contours in low rainfall areas
S. Recharge pits	IV. Surface water bodies created over a highly permeable area

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

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 c.

8) The average monthly rainfall volume of an area is 100 mm. The rainwater is being collected in a building having roof area of 250 sqm and household size of 5. Determine the number of days the collected rain water is adequate for a building (consider average daily water demand as 120 lpcd) if the entire water can be treated and stored without loss. 1 point

- a. 300 days
 b. 400 days
 c. 500 days
 d. 600 days

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 c.

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

Types of flooding	Description
P. Fluvial flooding	I. Occurs due to storm surge
Q. Pluvial flooding	II. Occurs when a rainfall event creates a flood not related to an overflowing water body.
R. Coastal flooding	III. Occurs when a river overflows its banks.

- a. P-III; Q-I; R-II
 b. P-III; Q-II; R-I
 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:
 b.

10) Which statement/s is/are correct among the given statements? 1.5 points

- A. Storm surge occurs when high winds push seawater to the coast.
 B. During pluvial flooding, river overflows its banks.
 C. Increase in pervious areas has increased the incidents of floods.
 D. For 1D/1D approach of flood modeling, surface flows are modeled as open channels or ponds and solved using the 1D Saint-Venant equations.

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

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 c.

11) HEC-RAS is used for: 1 point

- A. Sewage Treatment Simulation
 B. Water quality modeling in streams
 C. Simulation of ultrafiltration and reverse osmosis
 D. Floodplain management

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

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 d.

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

Sustainable Urban Drainage Systems	Examples
P. Source control measure	I. Retention ponds
Q. Site control measure	II. Infiltration trench
R. Regional control measure	III. Green roof

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

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 a.

13) In flood modeling using HEC-RAS, Delaunay Triangulation Technique is used to create: 1 point

- a. 2D computational mesh
 b. Terrain model
 c. Road network
 d. Boundary polygon for flow areas

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 a.

14) Data used in 1D/2D dual drainage approach using HEC-HMS are: 1 point

- A. Land use and land cover
 B. Hydrological soil group
 C. Location of elevated reservoir
 D. Infiltration

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

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 a.

15) In which format the Digital terrain model of the river system is used as input in 1D/2D dual drainage approach using HEC-GeoRAS? 1 point

- a. .sed file
 b. DEM
 c. ArcInfo TIN
 d. .bco file

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 c.

16) In hilly areas, artificial groundwater recharge can be achieved by 1 point

- A. Injection wells
 B. Contour bunding
 C. Bench terracing
 D. Recharge basins

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

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 b.

17) _____ approach of stormwater management manages runoff at the source through distributed decentralized micro-scale controls. 1 point

- a. Water Sensitive Urban Design
 b. Low Impact Development
 c. Sustainable Urban Drainage System
 d. None of the above

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 b.

18) Underground *bandharas* are a type of: 1 point

- a. Rooftop rainwater collection system
 b. Subsurface groundwater recharge technique
 c. Surface groundwater recharge technique
 d. Ground water conservation technique

- a.
 b.
 c.
 d.

No, the answer is incorrect. Score: 0

Accepted Answers:
 d.