

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

- Lecture 46 : Sewer appurtenances Part 1
- Lecture 47 : Sewer appurtenances Part 2
- Lecture 48 : Storm water drains
- Lecture 49 : Sewer maintenance and cleaning
- Lecture 50 : Laying of sewer and utility corridors
- Week 10 Lecture Material
- Quiz: Week 10 : Assignment 10
- Week 10 Feedback Form

Week 11

Week 12

Detail Solution

Live Interactive session

Week 10 : Assignment 10

The due date for submitting this assignment has passed.

Due on 2021-10-06, 23:59 IST.

As per our records you have not submitted this assignment.

- 1) Storm water inlet spacing is based on:
- geometry of the site
 - Inlet opening capacity
 - Tributary drainage magnitude
 - Soil characteristics at inlet
- a. A and B
b. B and C
c. A, B and C
d. A, B and D
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: c.
- 2) A triangular gutter of concrete has a longitudinal slope of 1%, cross slope of 2%, and a kerb depth of 0.2 m. The flow rate and flow depth if the spread is limited to 2 m respectively are:
- 0.048 m³/s, 0.045 m
 - 0.043 m³/s, 0.04 m
 - 0.054 m³/s, 0.04 m
 - 0.029 m³/s, 0.04 m
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: d.
- 3) Choose the incorrect statement/s from the following
- Storm water inlets are placed at a minimum spacing >10 m and maximum <30 m.
 - Two catch basins must be provided for every 3 water inlets
 - Rising portion of an inverted siphon should be less steep to prevent deposits.
 - Pumping stations for storm water is necessary to avoid flooding and waterlogging.
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: b.
- 4) Design period of a pumping station is _____ years.
- 10
 - 15
 - 30
 - 20
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: b.
- 5) Match the following:
- | Installation | Function |
|-------------------|--|
| P. Manholes | I. Horizontal centrifugal pump is installed with its suction pipe connected to the sump and outlet at desired outfall point |
| Q. Dry pit system | II. Small temporary structures, constructed before a swale across a drainage ditch to reduce runoff velocities and resulting erosion |
| R. Flap gates | III. Connects ground level to opening in sewer line for maintenance |
| S. Check dam | IV. Reduces inflow of coastal sediment/sand (tidal drains), saltwater intrusion, frequency and/or severity of backwater flooding |
- The correct match from the set of options given below is:
- P-III; Q-I; R-IV; S-II
 - P-I; Q-II; R-III; S-IV
 - P-IV; Q-III; R-I; S-II
 - P-I; Q-IV; R-II; S-III
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 6) Among the following, which are/is not a temporary erosion and sedimentation control techniques/practice?
- Mulching
 - Seeding
 - Sediment Basin
 - Flap gates
- a. A and B
b. B and C
c. C and D
d. D only
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: d.
- 7) _____ helps in flood forecasting, design of spillways, reservoirs & flood protection works by predicting the changes in shape of a hydrograph as water moves through a river channel or a reservoir.
- Hydraulic routing
 - Hyetograph
 - Isochrones
 - Unit hydrograph
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 8) Choose the correct statement/s from the following:
- Lesser the surface area of the channel, lesser the lining cost and more hydraulic capacity
 - Semi-circular channel has the minimum hydraulic capacity with maximum surface area
 - Trapezoidal section is of high cost and is difficult to construct
 - Natural channels need to be stabilized to carry the storm water run-off in urban areas
- a. A and B
b. B and C
c. C and D
d. D and A
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: d.
- 9) Match the following:
- | Method | Application |
|--------------------------|--|
| P. Manual Cleaning | I. Uses manned machinery for removing silt – applicable for large drains |
| Q. Mechanical Excavators | II. Uses automated machinery – applicable for very large drains |
| R. Robotic excavators | III. Employs hand tools such as shovels, spades and scrapers – applicable for small drains |
- The correct match from the set of options given below is:
- P-III; Q-I; R-II
 - P-III; Q-II; R-I
 - P-II; Q-III; R-I
 - P-I; Q-III; R-II
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 10) Storm water facilities has to be inspected regularly for:
- Scouring of bed and sides
 - Full or partial blockage of the drain (siltation or dumping of solid waste/debris)
 - Damage to drain structure
- a. A and B
b. B and C
c. C and D
d. A, B and C
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: d.
- 11) Match the following:
- | Term | Application |
|----------------------|---|
| P. Drop Manholes | I. To attain self-cleansing velocities in flat terrain |
| Q. Flushing Manholes | II. Vertical shaft of 20-30 cm diameter |
| R. Junction Manhole | III. Used when difference in elevation between branch and main sewer/incoming and outgoing sewer is more than 60 cm |
| S. Lamp hole | IV. Gradient of the smaller sewer may be increased at junction to reduce invert level difference to a suitable value. |
- The correct match from the set of options given below is:
- P-III; Q-I; R-IV; S-II
 - P-I; Q-II; R-III; S-IV
 - P-IV; Q-III; R-I; S-II
 - P-I; Q-IV; R-II; S-III
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 12) Sewer cleaning is undertaken on a scheduled basis to:
- reduce blockages per unit length of sewer
 - to remove deposits
 - minimize odor
 - to trap gases
- a. A, B and C
b. A, B and D
c. C, B and D
d. A, B and D
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 13) Match the following:
- | Sewer cleaning techniques | System |
|---|-------------------------|
| P. Manila Rope and Cloth Ball, Sectional Sewer Rods | I. Hydraulic systems |
| Q. Sewer Cleaning Bucket Machine, Dredge | II. Manual systems |
| R. Flush Bags, Sewer Scooters, | III. Mechanical Systems |
| S. Suction units, Velocity Cleaners | |
- The correct match from the set of options given below is:
- P-II; Q-III; R-I; S-I
 - P-II; Q-I; R-III; S-I
 - P-I; Q-II; R-III; S-III
 - P-II; Q-III; R-I; S-III
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 14) Gutters, inlets and outfall structures must be cleaned every:
- 1 year
 - 3 months
 - 6 months
 - 1.5 years
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: c.
- 15) Ponding in a storm water drain can be remedied by:
- deepening the drain, refilling eroded or depressed area
 - desilting and cleaning
 - provision of grating at entry points
 - providing flatter slope with drops
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 16) Sewer trench width depends on:
- Sewer line diameter and its bedding and the type of shoring (single stage or two stage)
 - Working space required inside the trench and the type of soil and ground below the surface
 - Adjoining services and nearby structures
 - Length and slope of the sewer
- a. A and B
b. A and C
c. A, B and C
d. A, B and D
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: c.
- 17) Choose the incorrect statement/s from the following:
- Sewer construction starts from the starting end and then progresses towards the outfall.
 - Alignment of sewer is carried out in a straight line between manholes.
 - Dewatering trenches is required for placement of concrete bedding and laying of pipe sewer or construction of concrete or brick sewer till curing
 - Horizontal layout of the sewer determines hydraulic carrying capacity
- a. A and B
b. A and C
c. A and D
d. D and B
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: c.
- 18) _____ is a heated tunnel housing all utilities in cold areas:
- Utilidor
 - Utility chamber
 - Sewer corridor
 - Sewer chamber
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: a.
- 19) Choose the incorrect statement/s from the following:
- Kinematic wave is the basic hydraulic equation that includes gravity and frictional forces, balancing each other
 - The diffusion wave routing equation incorporates the pressure forces only
 - The dynamic wave equation considers all the terms of the momentum equation
 - In kinematic wave motion inertial and pressure forces have considerable effects
- a. A and B
b. B and D
c. C and A
d. A and D
- a.
 b.
 c.
 d.
- No, the answer is incorrect.
Score: 0
Accepted Answers: b.