

Unit 13 - Week 11

Course outline
How to access the portal
Week 0 Assignment 0
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
<ul style="list-style-type: none"> <input checked="" type="radio"/> Lecture 51 : Surface drainage system design-1 <input type="radio"/> Lecture 52 : Surface drainage system design-2 <input checked="" type="radio"/> Lecture 53 : Non-conventional drainage <input checked="" type="radio"/> Lecture 54 : Economics of drainage project <input checked="" type="radio"/> Lecture Material <input checked="" type="radio"/> Lecture 55 : Tutorial <input type="radio"/> Quiz : Assignment 11 <input type="radio"/> Feedback for Week 11
Week 12
Details Solution
Live Session

Assignment 11

The due date for submitting this assignment has passed. Due on 2019-10-16, 23:59 IST.
 As per our records you have not submitted this assignment.

- 1) If rainfall occurs on a concrete surface, then the curve numbers for such a land use will be _____ 1 point
- a. 140
 b. 80
 c. 100
 d. 35
- No, the answer is incorrect.
Score: 0
Accepted Answers:
 c.
-
- 2) Mole drainage is suitable for _____ 1 point
- a. Sandy soil
 b. Loamy soil
 c. Clay soil
 d. All soil
- No, the answer is incorrect.
Score: 0
Accepted Answers:
 c.
-
- 3) If the time of concentration is less than the rainfall duration, the runoff calculated by the Rational method will be _____ 1 point
- a. Less than the peak runoff rate
 b. Constant at peak runoff rate
 c. Equal to stream discharge
 d. Intangible
- No, the answer is incorrect.
Score: 0
Accepted Answers:
 b.
-
- 4) The unit of Manning's roughness coefficient is _____ 1 point
- a. $TL^{-1/3}$
 b. $L^{-1/3}$
 c. $TL^{1/3}$
 d. T
- No, the answer is incorrect.
Score: 0
Accepted Answers:
 a.
-
- 5) The curve number method of runoff estimation is adopted for watersheds of the following type _____ 1 point
- a. Gauged
 b. Ungauged
 c. Large
 d. Small
- No, the answer is incorrect.
Score: 0
Accepted Answers:
 b.
-
- 6) A catchment has an area of 5 km². The average slope of the land surface is 0.006 and the maximum travel depth of rainfall in the catchment is approximately 1.95 km. The maximum depth of rainfall in the area with a return period of 25 years is as tabulated below: 1 point
- | | | | | | | | | |
|---------------------|----|----|----|----|----|----|----|----|
| Time duration (min) | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 60 |
| Rainfall depth (mm) | 15 | 25 | 32 | 45 | 50 | 53 | 60 | 65 |
- Consider that 2.0 km² of the catchment area has cultivated sandy loam soil (C=0.2) and 3.0 Km² has light clay cultivated soil (C=0.7). Determine the peak flow rate of runoff by using the rational method.
- a. 35-38 m³/s
 b. 89-92 m³/s
 c. 53-56 m³/s
 d. 14-17 m³/s
- No, the answer is incorrect.
Score: 0
Accepted Answers:
 c.
-
- 7) Determine the discharge capacity (in m³/s) of a parabolic grassed waterway with a top width of flow 7.5 m, depth of flow 0.3 m and bed slope of 4%. The roughness coefficient of the grass is 0.04. 1 point
- a. 3.56
 b. 2.56
 c. 4.56
 d. 1.56
- No, the answer is incorrect.
Score: 0
Accepted Answers:
 b.
-
- 8) Considering the same grassed waterway design parameter describe in pervious question (Week 11-q7). What would be the change (increase or decrease) in the discharge capacity of the channel section (in %), if the roughness coefficient of grassed waterway has changed to 0.08? 1 point
- a. Increase by 50%
 b. Decrease by 50%
 c. Increase by 2 %
 d. Neither increase nor decrease
- No, the answer is incorrect.
Score: 0
Accepted Answers:
 b.
-
- 9) Determine the depth of runoff and peak rate of runoff for 25 years' recurrence interval for antecedent moisture condition II from a 150 ha watershed. The curve numbers to apply for three 50 ha sub-watersheds for antecedent moisture condition II are respectively 85, 65 and 75. Six-hour and 25 years' frequency rainfall for the given location is 120 mm. The time of concentration and the time of the peak of runoff are 30 min and 60 min respectively. 1 point
- a. 4.25 cm and 3.45 cm
 b. 4.25 cm and 5.65 cm
 c. 8.46 cm and 5.65 cm
 d. 8.46 cm and 3.45 cm
- No, the answer is incorrect.
Score: 0
Accepted Answers:
 c.
-
- 10) Assuming an Interest rate of 5.5%, the average cost for irrigation works is Rs. 1,100 per hectare, total drainage cost of Rs. 775 per hectare, operation and maintenance annual cost Rs. 23.75 per hectare 1 point
- Distribution of acreages by economic land class
- | Class | Hectares | Net direct benefits by land class:
(Annual benefit per hectare) in Rs | Total annual benefit
[hectares x annual benefit] |
|-------|----------|--|---|
| 1 | 96 | 181.25 | 17,400 |
| 2 | 40 | 156.50 | 6,260 |
| 2 | 120 | 107.75 | 12930 |
- Find an estimate of the Benefit-cost (B/C) ratio over the 100-year life expectancy of the drainage system.
- a. 0-1
 b. 1-2
 c. 2-3
 d. 3-4
- No, the answer is incorrect.
Score: 0
Accepted Answers:
 b.