

Module 211 Reservoir Flood Routing Activity Questions

Activity 1

Given

An engineer is interested in knowing the maximum storage that will be needed for a reservoir. The design inflow hydrograph is given as part of table four. Table three is a working table that identifies the elevation-discharge-storage relationships. The time interval has been selected. The routing is complete but several gaps in tables 3 and 4 are left to be filled in.

Find

The missing data entries in tables 3 and 4. Then determine the maximum storage volume needed for the design storm. (*Refer to pages 20-21 in Module 201 for Tables 3 and 4*)

Solution: (*Refer to pages 40-42 in Module 201 for Solutions to Activity 1*)

Activity 2

Given

A 153 acre watershed receives a five-inch rainfall. Since the watershed has a curve number of 75, 2.45 inches of rain are expected to run off (EFM, Exhibit 2-7). The maximum inflow to the reservoir is expected to be 190 cfs. (EFM, Chapter 2) The maximum discharge the outlet pipe can produce is 45 cfs.

Find

Using figure 10, determine the storage volume required.
(*Refer to page 23 in Module 201 for Figure 10*)

Solution: (*Refer to pages 43 in Module 201 for Solution to Activity 2*)

Activity 3

Given

A 153 acre watershed receives a five-inch rainfall. Since the watershed has a curve number of 75, 2.45 inches of rain are expected to run off (EFM, Exhibit 2-7). The maximum inflow to the reservoir is expected to be 190 cfs. (EFM, Chapter 2) The maximum storage available at the site is 13.4 acre-feet.

Find

Using figure 10, determine the peak outflow discharge the pond must have.
(Refer to page 23 in Module 201 for Figure 10)

Solution: *(Refer to pages 43 in Module 201 for Solution to Activity 2)*