

***** EXAMINATION *****

HYDRAULIC DESIGN OF SPILLWAYS

- 1. The basic purpose of the spillway provides:**
 - a) means of controlling the flow
 - b) conveyance from reservoir to tail water
 - c) for flood discharges up to spillway design flood.
 - d) All of the above.

- 2. In designing spillways, damage to the structure of the dam:**
 - a) is considered unacceptable
 - b) is considered acceptable once with every 100-year flood
 - c) is considered better than damage to the spillway.
 - d) None of the above.

- 3. Concrete gravity dams use:**
 - a) an limited service spillway
 - b) side channel spillway
 - c) overflow spillway
 - d) chute spillway

- 4. A chute spillway is used:**
 - a) for earth dams
 - b) narrow canyons
 - c) rock-filled dams
 - d) All of the above.

- 5. Environmental considerations include:**
 - a) fish
 - b) wildlife
 - c) recreation
 - d) All of the above.

- 6. Hydraulic analysis of the spillway involves consideration of the:**
 - a) sub-critical flow in the spillway approach.
 - b) critical flow as the water passes over the spillway crest.
 - c) Supercritical flow in the chute.
 - d) All of the above.

7. **Analysis of the height of the dam versus the width of the:**
- a) spillway involves determining the flood plain
 - b) spillway involves determining the cost
 - c) spillway involves determining the soil conditions
 - d) None of the above
8. **The equation analyzing steady incompressible flow through a:**
- a) spillway is Bernoulli's energy equation.
 - b) spillway is Paquet's equation.
 - c) spillway is Albertini's equation.
 - d) None of the above.
9. **For most regular-shaped channels, the energy correction coefficient:**
- a) is zero
 - b) is one
 - c) is inversely proportional to the specific gravity of water.
 - d) is directly proportional to the specific gravity of water.
10. **The hydraulic grade line is also known as:**
- a) the Bernoulli line
 - b) the crest line
 - c) the mean pressure gradient.
 - d) None of the above.
11. **The hydraulic energy loss associated with flow through the:**
- a) spillway is important to the design of training walls
 - b) spillway is important to the design of piers
 - c) spillway is important to the design of the terminal structure
 - d) All of the above.
12. **The main difference in determining energy loss is:**
- a) Darcy-Weisbach equations gives more reliable results
 - b) Chezy can be used for different conditions.
 - c) Manning uses an empirically derived resistance coefficient.
 - d) Manning and Chezy use known effective roughness values.
13. **The roughness from lowest to highest is:**
- a) long grass, smooth rock, concrete
 - b) smooth rock, long grass, concrete
 - c) concrete, smooth rock, long grass
 - d) concrete, long grass, smooth rock
14. **Cavitation should be investigated whenever flow velocities:**
- a) excess of 15 ft/sec
 - b) excess of 35 ft/sec
 - c) excess of 55 ft/sec
 - d) excess of 75 ft/sec

15. The capacity of the spillway is dependent upon the:

- a) crest shape, crest length, and hydraulic head
- b) capacity of the dam
- c) 100-year flood cycle
- d) None of the above.

16. The most economic design of a spillway has:

- a) a large energy head on the crest
- b) a moderate design head
- c) a large unit discharge
- d) all of the above.

17. A free flow discharge is:

- a) not influenced by downstream conditions
- b) larger for a wider spillway
- c) smaller for a wider spillway
- d) None of the above.

18. Type of spillway approaches include:

- a) confined, deep, and shallow
- b) confined, restrained, open
- c) deep, open, variable
- d) None of the above.

19. The chute connects:

- a) the crest curve to the basin
- b) the crest head to the terminal structure
- c) the crest curve to the terminal structure
- d) None of the above.

20. Bulking is:

- a) gathering of overflow water
- b) an increase in volume due to entrained air.
- c) gathering of water below the chute
- d) None of the above

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