Assignment 6

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment. Due on 2020-10-28, 23:09 IST.

1. Which of the following is the relation between abutment scour depth (d) and upstream flow velocity (U)?
   - A. d = U^2
   - B. d = 0.1U
   - C. d = U^2 / 2

   No the answer is incorrect
   Accepted Answers:
   - B. d = 0.1U

2. The process of removing material from the bed or the banks of a waterway for the purpose of deepening or widening navigation channels or to obtain fill material for development is known as
   - A. Dredging
   - B. Deeping
   - C. Deepening
   - D. Digging

   No the answer is incorrect
   Accepted Answers:
   - A. Dredging

3. Which of the following are excavated from the channel bed and used for the construction of artificial cutoffs?
   - A. Pilot channels
   - B. Chambers
   - C. Span
   - D. None of the above

   No the answer is incorrect
   Accepted Answers:
   - A. Pilot channels

4. The type of scouring used to excavate hard compacted material and blasted rock fragments are
   - A. Hydraulic action designs
   - B. Harbor designs
   - C. Riprap designs
   - D. All of the above

   No the answer is incorrect
   Accepted Answers:
   - D. All of the above

5. In Colorado State University (CSU) equation for scour, the value of correction factor (Kc) for Circular towers is
   - A. 0.9
   - B. 1.1
   - C. 1.4
   - D. None of the above

   No the answer is incorrect
   Accepted Answers:
   - A. 0.9

6. The flow decreases at the upstream face of the pier as it travels by the side of the pier, creating a vortex, termed as
   - A. Vortex shedding
   - B. Vortex
   - C. Circular vortex
   - D. None of the above

   No the answer is incorrect
   Accepted Answers:
   - A. Vortex shedding

7. Colorado State University (CSU) equation for pier scour is given as y = (0.4UWd)(10^{1.33})y_{ref}/y_{ref}^{0.4} in this equation what is y_{ref} stands for?
   - A. Correction factor for pier nose shape
   - B. Correction factor for angle of attack of flow
   - C. Correction factor for amount of bed material
   - D. Correction factor for bed conditions

   No the answer is incorrect
   Accepted Answers:
   - D. Correction factor for bed conditions

8. How does the strength of the vortex depend on the depth of scour?
   - A. The strength of the vortex decreases as the depth of scour is increased
   - B. The strength of the vortex increases as the depth of scour is increased
   - C. None of the above

   No the answer is incorrect
   Accepted Answers:
   - A. The strength of the vortex decreases as the depth of scour is increased

9. The acceleration of flow around the pier and the formation of vortex is one of the causes for
   - A. Formation of secondary flows
   - B. Bed material disruption at pier structure
   - C. None of the above
   - D. All of the above

   No the answer is incorrect
   Accepted Answers:
   - D. All of the above

10. Factors that affect the depth of local scour at pile are
    - A. Width of pier
    - B. Depth of flow
    - C. Bed configuration
    - D. All of the above

    No the answer is incorrect
    Accepted Answers:
    - D. All of the above

11. A dam located over a river is built across a 45 m wide river. The drop height is 2.5 m, and the face angle of the structure is 45°. The scour slope is approximately 1:2.5 in non-cohesive material with k_p = 1.5 m. Estimate the scour depth when the river discharge is 100 m^3/s.
    - A. 70 m
    - B. 30 m
    - C. 15 m
    - D. 0 m

    No the answer is incorrect
    Accepted Answers:
    - A. 70 m

12. A 20 m long bridge is to be constructed in the sand bed channel of a river with 45° in long split through abutment. The design 100 year flow discharge is 50 m^3/s, with flow velocity 4 m/s. If the depth of flow upstream of the piers is 3.0 m, estimate the abutment scour depth.
    - A. 45 m
    - B. 30 m
    - C. 15 m
    - D. 0 m

    No the answer is incorrect
    Accepted Answers:
    - A. 45 m