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Examination for Roller-Compacted Concrete Chapters 5-8

CHAPTER 5 - DESIGN AND CONSTRUCTION CONSIDERATIONS

1. Anchorage reinforcement by drilling and grouting can not be installed after RCC placement?
 - a) True
 - b) False
 - c) Not enough information for answer
 - d) Too many variables for specific answer

2. Face drains are constructed when?
 - a) Soon after RCC placement
 - b) During RCC placement
 - c) Just prior to RCC placement
 - d) After project completion

3. How large should an RCC test strip be?
 - a) Approximately one dozer width wide and one roller length long
 - b) Approximately two dozer widths wide and three to six roller lengths long
 - c) Approximately four dozer widths wide and four to eight roller lengths long
 - d) Approximately four dozer widths wide and four roller lengths long

4. If little or no attempt is made to compact the edges of an RCC placement, the sides will assume a natural angle of repose ranging from?
 - a) 25 to 35 degrees
 - b) 65 to 75 degrees
 - c) 35 to 45 degrees
 - d) 45 to 65 degrees

5. RCC is often placed in layers at what thickness?
 - a) 100 - 250 mm (4 - 10 in.)
 - b) 250 - 400 mm (10 - 16 in.)
 - c) 400 - 750 mm (16 - 30 in.)
 - d) 750 - 900 mm (30 - 36 in.)

6. Galleries are included in the design of many dams of what height?
- a) 30 m maximum
 - b) Less than 30 m
 - c) Less than 20 m
 - d) Greater than 30 m

CHAPTER 6 - CONSTRUCTION METHODS AND EQUIPMENT

7. What is the typical production rate for a moderate-size RCC dam project?
- a) From 35 to 150 m³/hr (50 to 230 yd³/hr)
 - b) From 150 to 350 m³/hr (230 to 460 yd³/hr)
 - c) From 350 to 750 m³/hr (460 to 1000 yd³/hr)
 - d) From 35 to 750 m³/hr (50 to 1000 yd³/hr)
8. What is the recommended NMSA for a pug-mill?
- a) 35 to 75 mm (1.5 to 3 in.)
 - b) 75 to 100 mm (3 to 4 in.)
 - c) 100 to 150 mm (4 to 6 in.)
 - d) 75 to 150 mm (3 to 6 in.)
9. Segregation is minimized if the RCC pile heights are limited to what?
- a) 400 mm (16 in.)
 - b) 500 mm (20 in.)
 - c) 600 mm (24 in.)
 - d) 800 mm (32 in.)
10. Small dozers have been successfully utilized to spread and level RCC when the lift thickness is limited to what?
- a) 200 mm (8 in.)
 - b) 300 mm (12 in.)
 - c) 400 mm (16 in.)
 - d) 500 mm (20 in.)
11. Typically, compaction is to be completed within 15 minutes after spreading, and what?
- a) Within 15 minutes from the time of initial mixing
 - b) Within 45 minutes from the time of initial mixing
 - c) Within 90 minutes from the time of initial mixing
 - d) Within 120 minutes from the time of initial mixing
12. Application of bedding mortar should precede placement of RCC by how long?
- a) 10 to 15 minutes
 - b) 15 to 20 minutes
 - c) 20 to 30 minutes
 - d) 30 to 45 minutes

13. What is the typical size of precast concrete panels used to form vertical faces of RCC structures?

- a) 2 ft. by 4 ft. and 2 inches thick
- b) 3 ft. by 6 ft. and 4 inches thick
- c) 3 ft. by 15 ft. and 4 inches thick
- d) 4 ft. by 8 ft. and 6 inches thick

CHAPTER 7 - QUALITY CONTROL AND QUALITY ASSURANCE IN RCC CONSTRUCTION

14. What guide provides detailed responsibilities and a checklist for the GQA representative?

- a) ER 1180-1-6 “Construction Quality Management Guide”
- b) EP 415-1-261 “Quality Assurance Representative's Guide”
- c) ER 415-1-261 “Government Quality Assurance Guide”
- d) EP 1180-1-6 “Government Quality Assurance Representative’s Guide”

15. Where can a typical outline for the concrete construction part of an ECIFP report be found?

- a) EM 1110-2-200 “Standard Practice for Concrete for Civil Works Projects”
- b) EM 1110-2-300 “Standard Practice for Concrete for Civil Works Projects”
- c) EM 1110-3-200 “Standard Practice for Concrete for Civil Works Projects”
- d) EM 1110-4-400 “Standard Practice for Concrete for Civil Works Projects”

16. Density measurements are typically performed following RCC compaction efforts using a nuclear density gauge in accordance with what standard?

- a) CRD-C 103 (ASTM C 136)
- b) CRD-C 105 (ASTM C 117)
- c) CRD-C 53 (ASTM C 1040)
- d) CRD-C 64 (ASTM C 1040)

17. Determining the moisture content of aggregates and RCC is generally performed as described in what standard?

- a) CRD-C 64 (ASTM C 1040)
- b) CRD-C 113 (ASTM C 566)
- c) CRD-C 103 (ASTM C 136)
- d) CRD-C 53 (ASTM C 1040)

18. What does AMD stand for?

- a) Annual Maximum Density
- b) Average Maximum Density
- c) Average Minimum Density
- d) Annual Minimum Density

19. Temperature monitoring should be performed at least daily as per what standard?
- a) CRD-C 53 (ASTM C 1040)
 - b) CRD-C 41 (ASTM C 231)
 - c) CRD-C 3 (ASTM C 1064)
 - d) CRD-C 160 (ASTM C 1176)
20. What type of meter is most commonly used when air content testing is prescribed?
- a) Type A
 - b) Type B
 - c) Type C
 - d) Type D
21. Where can details and guidance be found on the planning of instrumentation programs?
- a) EM 1110-2-4300 "Instrumentation for Concrete Structures"
 - b) EM 1110-3-4300 "Instrumentation for Concrete Structures"
 - c) EM 1110-4-4300 "Instrumentation for Concrete Structures"
 - d) EM 1110-5-4300 "Instrumentation for Concrete Structures"

CHAPTER 8 - PERFORMANCE

22. What percentage of RCC dams have been constructed worldwide since 1986?
- a) Less than 45 percent
 - b) 65 percent
 - c) 90 percent
 - d) Over 90 percent
23. What are the Vebe times of less workable "lean" RCC?
- a) < 30 sec
 - b) > 30 sec
 - c) < 20 sec
 - d) \leq 10 sec
24. Cracking of conventional concrete facing may occur as frequently as what?
- a) Every 2.8 m (9 ft)
 - b) Every 3.7 m (12 ft)
 - c) Every 4.6 m (15 ft)
 - d) Every 5.5 m (18 ft)
25. What is the typical size of contraction joint openings?
- a) From .5 to 1 mm
 - b) From 1 to 3 mm
 - c) From 3 to 9 mm
 - d) From 9 to 15 mm



Answer Sheet for Roller-Compacted Concrete Chpt 5-8
 TPDH-00004

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