

Section 9

WYDOT Sample Exam



WMTG Concrete Training & Certification Seminar

Sample WYDOT Written Examination

1. The minimum sample size for consistency test is 1/4 cubic foot.
 - a) True
 - b) False

2. Molding of cylinders and beams must begin within how many minutes after collecting the composite sample.
 - a) 5 minutes
 - b) 10 minutes
 - c) 15 minutes
 - d) 30 minutes
 - e) no time limits

3. Which cement generates heat the fastest and is typically used for high early strength gain or for cold weather mixes?
 - a) Type I
 - b) Type I/II
 - c) Type II
 - d) Type III
 - e) Type V

4. According to WYDOT, beams and cylinders shall be cured for the first 48 hours at a temperature range of 60F to 80F.
 - a) True
 - b) False

5. Many factors affect concrete durability including:

- a) Strength
- b) Entrained air content
- c) W/CM ratio
- d) Curing
- e) All of the above

6. The following can be added on-site to a batch of concrete:

- a) Water
- b) Slump enhancing admixture with engineer's approval
- c) Air enhancing admixture with engineer's approval
- d) All of the above

7. Concrete admixtures can:

- a) Adjust set time
- b) Reduce water demand
- c) Increase workability
- d) Entrain Air
- e) All of the above

8. According to QC/QA, the contractor is responsible for quality control of all materials and constructed structures.
- a) True
 - b) False
9. If the tare weight of the container is 6.75 lbs, volume is 0.249 cuft, and when the bucket is full of concrete weighs 43.0 lbs, calculate the unit weight of the fresh concrete.
- a) 144.2 lbs/cuft
 - b) 145.6 lbs/cuft
 - c) 158.2 lbs/cuft
 - d) 145.6 lbs/cy
 - e) None of the above
10. For PCCP and structural concrete, the minimum air content of fresh concrete according to WYDOT is:
- a) 4.5 %
 - b) 6.0 %
 - c) 7.5 %
 - d) 8.0 %
 - e) 8.5%
11. According to QC/QA for PCCP, a subplot cannot exceed what fraction of a "Paved Lot."
- a) $1/2$
 - b) $1/3$
 - c) $2/5$
 - d) $1/10$
 - e) $1/16$

12. Increasing the w/cm ratio will improve the durability of concrete, especially the freeze/thaw resistance?
- a) True
 - b) False
13. For PCCP, the temperature of the concrete shall be between 50F and 90F.
- a) True
 - b) False
14. Concrete shall not be placed on frozen subbase or base.
- a) True
 - b) False
15. If water is added at the site, the total mixing water cannot exceed the max. w/cm ratio and the mixing revolutions shall be increased by 20.
- a) True
 - b) False

For the given aggregate properties, compute the following:

$$W_{\text{DRY}} = 6.78 \text{ lbs}$$

$$W_{\text{SSD}} = 7.15 \text{ lbs}$$

$$W_{\text{WET}} = 7.75 \text{ lbs}$$

16. How much water is absorbed by the aggregate?

- a) 7.15 lbs
- b) 0.37 lbs
- c) 0.60 lbs
- d) 0.97 lbs
- e) None of the above

17. Calculate the percent of free moisture >

- a) 8.85 %
- b) 8.39 %
- c) 14.31 %
- d) 13.57 %
- e) None of the above

18. If the fresh concrete temperature is 79F , what is the maximum placing time?

- a) 30 minutes
- b) 90 minutes
- c) 45 minutes
- d) 72 minutes
- e) None of the above

19. If the total water content is 237 lbs/cy and the cement content is 564 lbs/cy, what is the w/cm ratio?
- a) 0.40
 - b) 2.38
 - c) 0.42
 - d) 0.47
 - e) None of the above
20. If the w/cm ratio = 0.45, cement content = 517 lbs/cy, and the net water available from the fine and coarse aggregate is 32.5 lbs/cy, compute the total amount of mix water required for a 5 cy batch.
- a) 1163 lbs
 - b) 1326 lbs
 - c) 232 lbs
 - d) 1001 lbs
 - e) 200 lbs
21. Concrete shall not be dropped in the forms a distance of more than _____, unless confined by close chutes or pipes.
- a) 5.0 ft
 - b) 6.5 ft
 - c) 10.0 ft
 - d) 3.5 ft
 - e) No limit

22. Calculate the rate of evaporation for the following condition: Air Temp. 80F, Relative Humidity 20%, Concrete Temp 80F, Wind Velocity 22 mph.
- a) 0.1 lb/sqft per hr
 - b) 0.2 lb/sqft per hr
 - c) 0.3 lb/sqft per hr
 - d) 0.2 lb/sqyd per day
 - e) None of the above
23. When the evaporation rate exceeds _____ lb/sqft per hr, WYDOT requires the contractor to take precautions to avoid plastic shrinkage cracking.
- a) 0.02
 - b) 0.20
 - c) 2.00
 - d) No upper limit
 - e) None of the above
24. It is acceptable to place winter curing blankets on the previously placed concrete just before going home for the day or within the next few days.
- a) True
 - b) False