Civil Engineering Licensure Exam – Mock Exam (Day 25: Equipment Management and Labor Productivity)

February 24, 2025

Instructions

- Time Limit: 60 Minutes
- Coverage: Equipment Management and Labor Productivity
- Total Questions: 10 (Multiple Choice & Problem-Solving)
- Show complete solutions for problem-solving questions.

Section A: Multiple Choice Questions (MCQs)

Choose the best answer.

1. The primary goal of equipment management in construction is to:
   (a) Reduce the number of workers needed
   (b) Maximize equipment utilization and efficiency
   (c) Increase labor costs
   (d) Minimize material usage
2. The term "equipment depreciation" refers to:
   (a) The increase in value of construction equipment over time
   (b) The decrease in equipment value due to wear and tear
   (c) The cost of fuel used by equipment

(d) The total number of work hours per day

3. The most commonly used measure of labor productivity in construction is:

   (a) Output per unit of time
   (b) Hours worked per worker
   (c) Total number of workers on-site
   (d) Equipment fuel consumption rate

4. The utilization rate of equipment is calculated as:

   (a) The ratio of actual operating hours to available hours
   (b) The total number of work shifts per month
   (c) The percentage of workers using the equipment
   (d) The amount of fuel consumed per day

5. A major factor that affects labor productivity on a construction site is:

   (a) Weather conditions
   (b) Equipment color
   (c) Total project budget
   (d) Number of management meetings

Section B: Problem-Solving

1. A bulldozer costs $250,000 and has an expected life of 8 years. If its salvage value at the end of its life is $30,000, determine its annual depreciation using the straight-line method.

2. A construction site has 50 workers completing 5,000 square meters of concrete work in 25 days. Determine the labor productivity in square meters per worker per day.

3. A backhoe is scheduled to operate for 40 hours per week but is only used for 30 hours. Determine its utilization rate.

4. A company estimates that a concrete mixer can produce 10 cubic meters of concrete per hour. If it operates for 6 hours per day, determine the total weekly output (assuming a 5-day workweek).

5. A crew of 10 workers completes a 500-meter road section in 20 days. If another crew of 12 workers is assigned to the same task, estimate the number of days required to complete the same amount of work, assuming equal productivity per worker.