Continuing Education Test

in

Incremental Investment & Incremental Return

for

Florida Board of Professional Engineers Provider #0004744
Louisiana Professional Engineering and Land Surveying Board CPD 234
North Carolina Board of Examiners for Engineers and Surveyors # S-0532
Professional Engineer Continuing Education Provider approved in 33 States
Approved by the Florida Department of Business & Professional Regulation for:
Construction Industry Licensing Board (CILB) PVD1117
Division of Certified Public Accounts Provider #0004744 Course #0011737
Board of Architecture and Interior Design Provider #0004744 PVD391 Course#AR.04 Level III

By Instructor

Eric H. Coffin, Registered PE Fla. – Green Energy Engineering, Inc.

Directions: Print test (from www.GEEintl.com web site, if you do not have a paper copy), complete it and return by mail, to Eric Coffin, 606 – 14th Avenue Northeast, St Petersburg, Florida 33701 for grading and posting. You must get 28 of the 40 questions (70%) correct to pass.

_____ _____ _____ _____
Print your name as you want it to appear on certificate — PE in State of — PE #

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Additional States (if required) — PE in State of — PE #

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1. Incremental Investment Introduction

What should the selection of house insulation be based on? Please circle your answer.

1. a. Color Maps b. Zone Tables c. Optimized Cost d. Friends' Recommendation

2. Calculus

What does the Calculus of incremental investment & incremental return seek to find?

2. a. Maximum point b. Minimum point c. Tangent point d. Point of inflection

3. Example 10-4

What can a larger copper conductor carry? Please circle your answer.

3. a. More current b. More water c. More phone calls d. More furlongs

A larger copper conductor will? Please circle your answer.

4. a. Cost more b. Eat more c. Be hard to hang or pull d. Be made of steel

4. Example 10-4 and Problem 10-6

Are electricity prices the same throughout the United States? Please circle your answer.

5. a. Yes b. No

Has the price of copper remained stable over the past few years? Please circle your answer.

6. a. Yes b. No

5. Wire Spreadsheet

What is the size of a copper conductor under various "*stated conditions*" ? The basic load is defined as a 10-horsepower electric motor operating at 208 volt 3-phase, which is located 200-feet from the motor control center (MCC).

What is the size of a copper conductor per NEC?

7. Please circle your answer. a. #10 b. #6 c. #4 d. #2 e. #1 f. 1/0

What is the size of a copper conductor per NEC and 3% VD?

8. Please circle your answer. a. #10 b. #6 c. #4 d. #2 e. #1 f. 1/0

What is the size of a copper conductor per NEC and 2% VD?

9. Please circle your answer. a. #10 b. #6 c. #4 d. #2 e. #1 f. 1/0

What is the size of a copper conductor per NEC, 2% VD, $4 Cu, $0.05/k/Wh electricity?

10. Please circle your answer. a. #10 b. #6 c. #4 d. #2 e. #1 f. 1/0

What is the size of a copper conductor per NEC, 2% VD, $2 Cu, $0.15/k/Wh electricity?

11. Please circle your answer. a. #10 b. #6 c. #4 d. #2 e. #1 f. 1/0

What is the size of a copper conductor carrying 50 amps for a school operating 2,000 hours per year with $0.15/k/Wh electricity, copper costing $3.00 per pound and a 20-year project life?

12. Please circle your answer. a. #10 b. #6 c. #4 d. #2 e. #1 f. 1/0

What is the size of a copper conductor carrying 50 amps for a Phosphate Plant operating 8,760 hours per year with $0.15/k/Wh electricity, copper costing $3.00 per pound and a 20-year project life?

13. Please circle your answer. a. #2 b. #1 c. 1/0 d. 00 e. 000 f. 0000

6. Residential Air Conditioning

How many air conditioner units does your home have? Please circle your answer.

14. a. one b. two c. three d. four e. five

What is the tonnage of each air conditioner unit? Please circle your answer.

15. a. one b. two c. three d. four e. five

What is your typical summer monthly electric bill? Please circle your answer.

16. a. $100 b. $200 c. $300 d. $400 e. $500 f. $600

What EER or SEER rating does your air conditioner unit have? Please circle your answer.

17. a. 8 b. 10 c. 12 d. 14 e. 16

7. Chillers

The first year's electrical cost of operating a chiller can sometimes equal half the purchase value of the chiller. Please circle your answer.

18. a. True b. False

8. Chiller Calculus

What is the first year's electrical operating cost of a 1,000 ton chiller with an operating efficiency of 1.0 kW/ton running at full load for 5,000 hours with a purchased electrical cost of $0.10/kWh? Please circle your answer.

19. a. $50,000 b. $500,000 c. $250,000 d. $1,000,000 e. $49.95

A single 1,000 ton chiller is to be purchased at a cost of $1,000 per ton. An 8% loan over 20-years can be obtained which yields a capital recovery factor (A/P,*i,n*) of 0.10185. What is the annual loan payment? Please circle your answer.

20. a. $1,000 b. $10,100 c. $101,850 d. $1,000,000 e. $49.95

9. Optimized Pumping

Moms are the original inventor of? Please circle your answer.

21. a. Jobs b. Chores c. Win-Win phrase d. Cake e. Wash up for dinner

22. Optimized sizing of a pipe must include consideration of? Please circle your answer.
a. Domestic pipe b. Economic Analysis c. Shovels d. Sod e. Paint

The capital (first cost) of pipe must be converted to? Please circle your answer.

23. a. Yen b. Annual cost c. Gold d. Diamonds e. Rubies

Can annual operating cost be directly compared with present value, capital cost, or first cost? Please circle your answer.

24. a. Yes b. No

Does the cost of pumping horsepower play a significant role in pipeline ownership and operation? Please circle your answer.

25. a. Yes b. No

10 Pipe Insulation

What is the thickness of pipe insulation in inches? Your guess.

26. (Circle answer). 0 1 2 3 4 5 6 7 8 9 10

What is the thickness of pipe insulation in inches? With 8760 hour, $19/mmBtu, 500°F

27 (Circle answer). 0 1 2 3 4 5 6 7 8 9 10

What is the thickness of pipe insulation in inches? With 2000 hours

28. (Circle answer). 0 1 2 3 4 5 6 7 8 9 10

What is the thickness of pipe insulation in inches? With 8760 hours, $7/mmBtu

29. (Circle answer). 0 1 2 3 4 5 6 7 8 9 10

What is the thickness of pipe insulation in inches? With 2000 hours, $23/mmBtu, 115°F

30. (Circle answer). 0 1 2 3 4 5 6 7 8 9 10

Lets now consider pipe insulation as a function of fuel cost.

What is the thickness of pipe insulation in inches? With 6000 hours, $2.5/mmBtu, 400°F

31. (Circle answer). 0 1 2 3 4 5 6 7 8 9 10

What is the thickness of pipe insulation in inches? With 6000 hours, $19/mmBtu, 400°F

32. (Circle answer). 0 1 2 3 4 5 6 7 8 9 10

What is the thickness of pipe insulation in inches? With 6000 hours, $43/mmBtu, 400°F

33. (Circle answer). 0 1 2 3 4 5 6 7 8 9 10

11 Planes, Trains, and Automobiles

I am now aware of the impact of energy prices because of the price fluctuations that affect the economy.

34. (Circle answer). a. Yes b. No

The IRS mileage reimbursement rate includes a lot more then just gasoline cost.

35. (Circle answer). a. True b. False

A Hummer (given to me) is still more expensive than buying a new car with payments.

36. (Circle answer). a. True b. False

The life cycle operational cost of a cooling tower can easily exceed the purchase cost.

37. (Circle answer). a. True b. False

A variable frequency drive can pay for itself within three years.

38. (Circle answer). a. True b. False

Alternative fuel / energy projects can be cost effective without subsidies.

39. (Circle answer). a. True b. False

Boiler heat rate is (circle answer)

40. a. kW b. kWh c. mm Btu d. Btu/kWh e. inches / mile

SEMINAR EVALUATION

Incremental Investment & Incremental Return

Please provide your grading of this DVD class by filling in the following comments. (Please Circle)

	Poor				Good
Class Content	1	2	3	4	5
Instructor	1	2	3	4	5
Delivery of material	1	2	3	4	5
Overall Rating of Class	1	2	3	4	5
Class Met My Expectations	1	2	3	4	5
Class Materials	1	2	3	4	5
Class Room Venue	1	2	3	4	5
Lunch	1	2	3	4	5

Please give your general feedback on the course and/or suggestions for future offerings. We greatly appreciate your participation in this class DVD class and look forward to working with you again. Thank you!

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Edited on Saturday, March 6, 2010