

**Allowed Materials:** F.E. approved calculator(s) see syllabus; pencils and/or pens.

ExamForm := 24

**Honor Statement:** On my honor, I promise that I have not received any unauthorized assistance on this exam (I didn't look at another student's paper, I didn't view any unauthorized written materials, I didn't talk or listen to another student, I didn't use an unauthorized calculator, I didn't use any electronic device, any visual or auditory signals, or any other techniques of exchanging information with others.) I have maintained the highest standards of academic integrity while completing this exam.

Signed: \_\_\_\_\_



1. (2 point deduction for failure to complete this problem!)

- Write in all of the indicated information in the boxes of your response form.
- Darken the appropriate circles to encode the corresponding information.
- Write your name on this exam and sign the Honor Statement.

Notes:

- If your last name is too long, just write the first 10 letters.
- "F.I." and "M.I." are your first and middle initials, respectively
- Your "Username" is the first part of your LATech email address
- For "Section" use the guide provided to the right
- Your "Exam Form" is printed on the upper right corner of this page.
- Indicate "ENGR" as the "Program"

Exam Form		Program	
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	CMEN
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	CVEN
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	FIEN

Bubble:	For Course	Section:
91	H01 - Crittenden	TR 10-12:50
92	H02 - Easley	TR 2-3:50
93	H03 - Swanbom	TR 12-1:50
94	H04 - Reeves	TR 8-9:50
95	H05 - Scoggin	MW 8-9:50
96	H06 - Moller	MW 10-11:50
01	001 - Swanbom	MW 2-3:50
02	002 - Scoggin	TR 12-1:50
03	003 - Swanbom	TR 8-9:50
04	004 - Corbett	TR 4-5:50

Last Name	F.I.	M.I.	LA Tech Username	Course #	Section (last 2 digits)
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Choices = ("A" "I properly completed all required items in problem 1, so I will not lose these points")  
("B" "I did not properly complete problem 1 because I am fine with losing these points.")



2. (3 points) Which of the following is not a guideline recommended in the class notes for creating mind maps?

Choices =

"A"	"don't judge or prejudge any idea"
"B"	"use color"
"C"	"draw doodles to elaborate or reinforce ideas"
"D"	"identify 5 to 10 related concepts"
"E"	"don't get bogged down"
"F"	"keep ideas flowing"
"G"	"add relationships and connections"
"H"	"put the main idea in the center of the page"



3. (3 points) Why is it important to install the LED of the IR-pair sensor in an enclosure?

Choices =

"A"	"it properly directs the infrared light emitted from the LED"
"B"	"it filters out light emitted by the LED at undesired wavelengths"
"C"	"it shields the LED from interference that could alter the wavelength it emits"
"D"	"it makes the infrared light visible to the human eye"
"E"	"it improves the IR pair's performance in detecting moving objects"
"F"	"it blocks out ambient sources of light"
"G"	"it expands the range of the infrared light emitted by the LED"
"H"	"it provides improved heat dissipation properties"



4. (3 points) In the Arduino sketch presented in class that allowed it to interface with the the rotary encoder, what function was used to tell the Arduino which pin to monitor continuously, and the conditions to check at that pin so as to avoid missing changes that ocurred in the position of the knob?

- Choices =
- "A" "delayMicroseconds( )"
  - "B" "attachInterrupt( )"
  - "C" "analogReference( )"
  - "D" "tone( )"
  - "E" "monitorPin( )"
  - "F" "digitalWrite( )"
  - "G" "digitalRead( )"
  - "H" "bitClear( )"
  - "I" "randomSeed( )"
  - "J" "shiftOut( )"



5. (3 points) What type of rivet was used to assemble the nameplates built in class?

- Choices =
- "A" "high-button rivet"
  - "B" "pan-head rivet"
  - "C" "pop rivet"
  - "D" "countersinking rivet"
  - "E" "bullfrog rivet"
  - "F" "flat-head rivet"
  - "G" "snap-head rivet"
  - "H" "truss-head rivet"
  - "I" "universal rivet"
  - "J" "stem rivet"

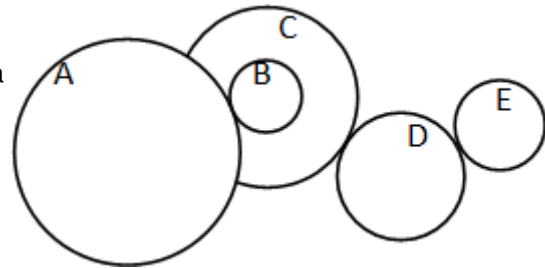


6. (3 points) Which of the following are categorized as *Organizing* personas in the book *The 10 Faces of Innovation*?

- Choices =
- "A" "hurdler, set-designer, cross-pollinator"
  - "B" "hurdler, collaborator, director"
  - "C" "director, anthropologist, experience architect"
  - "D" "caregiver, collaborator, cross-pollinator"
  - "E" "hurdler, experimenter, director"
  - "F" "experience architect, set designer, caregiver, storyteller"
  - "G" "hurdler, cross-pollinator, experimenter"
  - "H" "anthropologist, experimenter, cross-pollinator"
  - "I" "anthropologist, experimenter, collaborator"
  - "J" "collaborator, experience architect, director"



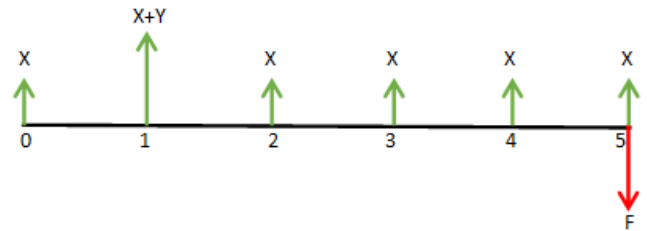
7. (3 points) The geartrain shown is driven by an input from a high RPM motor. The geartrain powers farming equipment that requires a low RPM output. Which of the following must be true for this to occur? (Note: assume the gears are drawn to scale.)



- Choices =
- "A" "the torque at gear C is independent of the torque at gear B"
  - "B" "gear A must rotate clockwise and gear E must rotate counterclockwise"
  - "C" "gears A and E must rotate the same direction"
  - "D" "the motor should be connected at gear E and the farming equipment should be connected at gear A"
  - "E" "gears B and C must have compatible teeth"
  - "F" "the torque at gear A must be smaller than the torque at gear E"
  - "G" "gear D must be eliminated; gear E should mesh directly with gear C"
  - "H" "gear E must rotate clockwise and gear A must rotate counterclockwise"
  - "I" "the motor should be connected at gear A and the farming equipment should be connected at gear E"
  - "J" "not enough information is given to draw any of these conclusions"



8. (3 points) Given this cash flow diagram, and assuming an interest rate of  $i$  per period, compounded once per period, the future value,  $F$  may be computed with which of the following expressions?

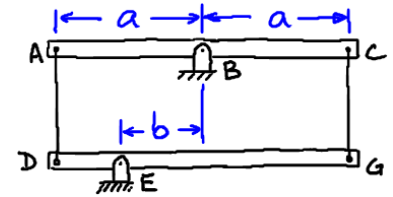


- i.  $F = X \cdot (1+i)^5 + X \cdot (1+i)^4 + X \cdot (1+i)^3 + X \cdot (1+i)^2 + X \cdot (1+i)^1 + X + Y \cdot (1+i)$
- ii.  $F = X \cdot (1+i)^6 + X \cdot (1+i)^5 + X \cdot (1+i)^4 + X \cdot (1+i)^3 + X \cdot (1+i)^2 + X \cdot (1+i) + Y \cdot (1+i)^4$
- iii.  $F = \sum_{a=0}^5 [X \cdot (1+i)^a] + Y \cdot (1+i)^4$
- iv.  $F = \sum_{a=1}^5 [X \cdot (1+i)^a] + (X+Y) \cdot (1+i)^4$
- v.  $F = X \cdot \left[ \frac{(1+i)^5 - 1}{i} \right] + (X+Y) \cdot (1+i)^4$
- vi.  $F = X \cdot \left[ \frac{(1+i)^6 - 1}{i} \right] + Y \cdot (1+i)^4$
- vii.  $F = X \cdot \left[ \frac{(1+i)^5 - 1}{i \cdot (1+i)^5} \right] + (X+Y) \cdot (1+i)$

- Choices =
- "A" "ii. and vi."
  - "B" "iii. and vi."
  - "C" "i. and iv."
  - "D" "i., iv., v., and vii."
  - "E" "i., iii, and v."
  - "F" "v. only"
  - "G" "vi. only"
  - "H" "iii., vi., and vii."
  - "I" "vii. only"
  - "J" "i. and iii."



9. (3 points) Knowing that ropes cannot carry compressive forces (i.e. they cannot resist efforts to move their connection points closer together), which condition must be met if the structure shown must support its own self-weight only (no external forces)?



Assume:  
 \*The center of gravity of the beams are at their midpoints.  
 \*None of the members will deform or break.  
 \*Ropes AD and CG have negligible mass.  
 \*The beams are perfectly horizontal, and the ropes are perfectly vertical.

- Choices =
- "A" "the value of dimension b must be larger than half of that of a"
  - "B" "the value of dimension b must be smaller than half of that of a"
  - "C" "the location of E must lie directly below B (i.e. b = 0)"
  - "D" "the location of E must lie to the left of B, (as shown)"
  - "E" "the location of E must lie to the right of B, (opposite of how shown)"
  - "F" "none of the conditions above will enable the structure to self-support"
  - "G" "the structure will self-support regardless of the conditions above"



Criteria	Design Alternative 1	Design Alternative 2	Design Alternative 3	Design Alternative 4
Criteria A	+	+	+	-
Criteria B	+	-	-	+
Criteria C	-	+	-	-
Criteria D	+	-	-	+
	+2	0	-2	0

10. (3 points) Given the Pugh chart shown above, what conclusions can you draw?

- i. This method predicts that Design Alternative 1 will be the overall best solution out of the current design alternatives being considered.
- ii. Design Alternative 1 can possibly be improved by implementing Design Alternative 2's solution to Criteria C.
- iii. Design Alternative 2 and design alternative 4 are compliments of each other, and could possibly be combined to make a solution that is better overall.
- iv. Design Alternative 3 is the worst possible solution.
- v. All design alternatives should be thrown out and a new design alternative should be developed.
- vi. The baseline solution was not appropriate as a datum for comparison.
- vii. The most important criteria was Criteria C.

- Choices =
- "A" "i., ii., iii., and vii."
  - "B" "iii. and iv."
  - "C" "i., ii., and vii."
  - "D" "iv."
  - "E" "ii. and vii."
  - "F" "v."
  - "G" "i., ii., iii., and iv."
  - "H" "v. and i."
  - "I" "i., ii., and iii."
  - "J" "ii., iii., and vii."



11. (3 points) You have a large sum of money that you would like to put on deposit at a bank for 10 years. The banker gives you the following options. Choose the one with the maximum rate of return over these 10 years:

- Ch =
- |     |  |
|-----|--|
| "A" | "an annual interest rate of 1.03%, compounded quarterly (once every 3 months)"                                       |
| "B" | "an annual interest rate of 1%, compounded daily (365 times a year)"   |
| "C" | "an annual interest rate of 1.02%, compounded monthly"   |
| "D" | "an annual interest rate of 1.01%, compounded weekly (52 times a year)"  |
| "E" | "an annual interest rate of 1.04%, compounded annually"  |
| "F" | "an annual interest rate of 1.05%, compounded just twice: halfway through the 10 year deposit, and again at the end" |
| "G" | "an annual interest rate of 1.06%, using simple interest; not compounding at all"                                    |
| "H" | "not enough information; it depends on the amount deposited"   |
| "I" | "there is no difference in rate of return for the given options"   |



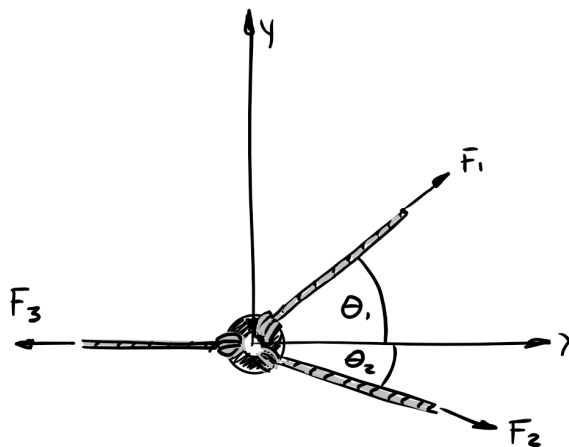
12. (5 points) Three cables are attached to a brass ring as shown. The magnitude of the resultant force of the three cables is closest to:

$F_1 = 30\text{ N}$        $\theta_1 = 40\text{-deg}$

$F_2 = 22\text{ N}$        $\theta_2 = 20\text{-deg}$

$F_3 = 30\text{ N}$

*neglect self-weight in this problem*



- Choices =
- |     |       |
|-----|-------|
| "A" | 18.02 |
| "B" | 19.11 |
| "C" | 20.21 |
| "D" | 21.31 |
| "E" | 22.40 |
| "F" | 23.48 |
| "G" | 24.58 |
| "H" | 25.68 |
| "I" | 26.75 |
- N



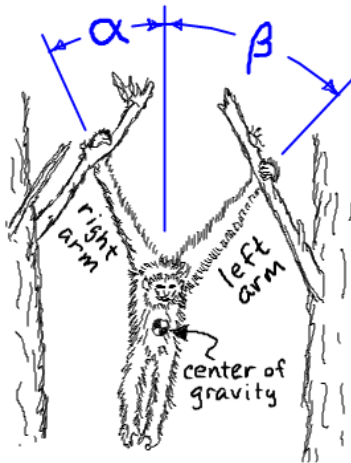
**13. Gibbon:**

$\alpha = 24\text{-deg}$

$\beta = 35\text{-deg}$

$\text{weight}_{\text{gibbon}} = 120\text{ N}$

*assume the gibbon is not flexing its arm muscles, and it is motionless in the position shown. assume the whole weight of the gibbon is concentrated at the center of gravity*



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**Answer:** (5 points)

- Choices =
- |     |       |
|-----|-------|
| "A" | 59.88 |
| "B" | 63.92 |
| "C" | 68.06 |
| "D" | 72.11 |
| "E" | 76.23 |
| "F" | 80.30 |
| "G" | 84.38 |
| "H" | 88.47 |
| "I" | 92.50 |
| "J" | 96.56 |
- N

**Required:**

The force carried in the gibbon's right arm.

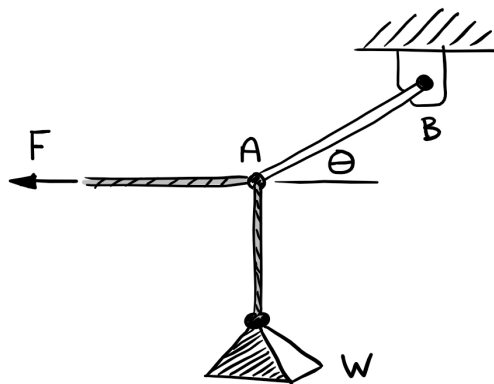


**14.** (5 points) A weight is swung into place by pulling on a rope as shown. The angle that member AB makes with a horizontal line is closest to:

$F = 250\text{-lbf}$

$W = 85\text{-lbf}$

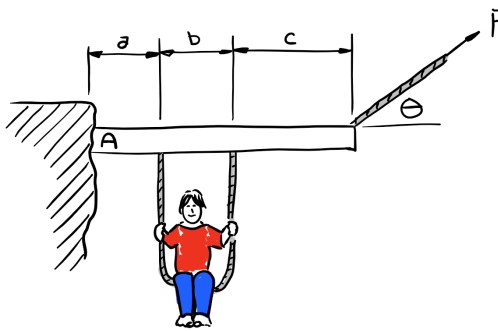
*assume ropes and member AB are massless*



- Choices =
- |     |      |
|-----|------|
| "A" | 8.2  |
| "B" | 9.5  |
| "C" | 10.8 |
| "D" | 12.1 |
| "E" | 13.5 |
| "F" | 14.8 |
| "G" | 16.1 |
| "H" | 17.4 |
| "I" | 18.8 |
| "J" | 20.1 |
- deg



**15 & 16.** (5 points total) Little Freddie is swinging on a beam that is embedded into a rock at one end and supported by a rope on the other end as shown. You can assume that each chain of the swing supports half of Little Freddie's weight. The net moment created about point A (where the beam is embedded in the rock) by the combination of Freddie's weight and the force F is closest to:



problem 15: (4 points)

- Choices =  $\left( \begin{array}{l} \text{"A"} \quad 0.0 \\ \text{"B"} \quad 37.2 \\ \text{"C"} \quad 40.3 \\ \text{"D"} \quad 43.4 \\ \text{"E"} \quad 46.5 \\ \text{"F"} \quad 49.5 \\ \text{"G"} \quad 52.6 \\ \text{"H"} \quad 55.7 \\ \text{"I"} \quad 58.8 \\ \text{"J"} \quad 61.9 \end{array} \right) \cdot \text{ft} \cdot \text{lbf}$

$a = 4 \cdot \text{ft}$        $b = 32 \cdot \text{in}$        $c = 11 \cdot \text{ft}$   
 $F = 32 \cdot \text{lbf}$        $\theta = 40 \cdot \text{deg}$       Freddie =  $60 \cdot \text{lbf}$   
*neglect self-weight of the beam*

problem 16: (1 point)

- Choices =  $\left( \begin{array}{ll} \text{"A"} & \text{"clockwise"} \\ \text{"B"} & \text{"counter-clockwise"} \\ \text{"C"} & \text{"zero net moment"} \end{array} \right)$

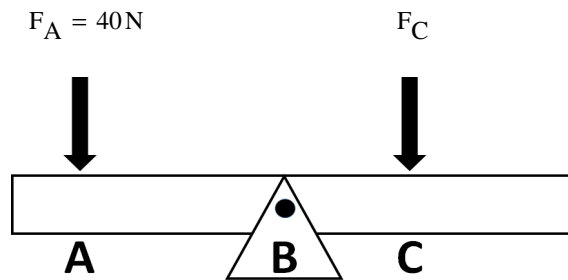


**17.** (5 points) Find the magnitude of force  $F_C$  for the system to maintain equilibrium.

distance<sub>AB</sub> = 17 m

distance<sub>BC</sub> = 45 m

*neglect self-weight of the beam*

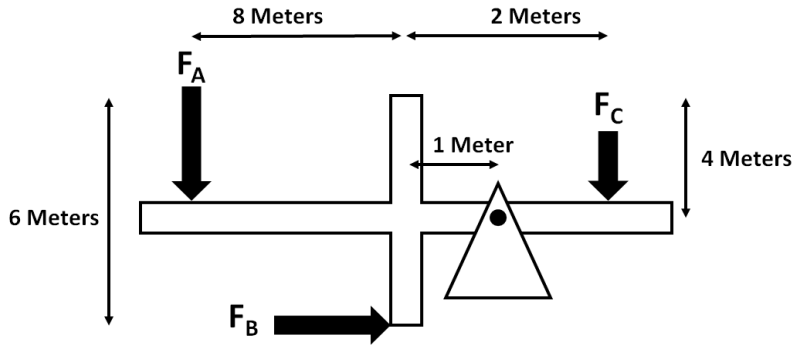


- Choices =  $\left( \begin{array}{l} \text{"A"} \quad 55.1 \\ \text{"B"} \quad 24.9 \\ \text{"C"} \quad 15.1 \\ \text{"D"} \quad 105.9 \\ \text{"E"} \quad -24.9 \\ \text{"F"} \quad 19.1 \\ \text{"G"} \quad 40.0 \\ \text{"H"} \quad 604.4 \end{array} \right) \cdot \text{N}$



**18 & 19.** (5 points total) For the following system, what is the value of  $F_B$ , if the system is in equilibrium?

*problem 18: (4 points)*



*neglect self-weight in this problem*

$$F_A = 87\text{ N}$$

$$F_C = 71\text{ N}$$

$$\text{Choices} = \left( \begin{array}{l} \text{"A"} \quad 0.0 \\ \text{"B"} \quad 158.0 \\ \text{"C"} \quad 712.0 \\ \text{"D"} \quad 356.0 \\ \text{"E"} \quad 427.0 \\ \text{"F"} \quad 16.0 \end{array} \right) \text{ N}$$

*problem 19: (1 point)*

$$\text{Choices} = \left( \begin{array}{ll} \text{"A"} & \text{"in the direction shown"} \\ \text{"B"} & \text{"opposite the direction shown"} \\ \text{"C"} & \text{"no force is required at B"} \end{array} \right)$$



**20.** (5 points) An engineering student has found that her servo's efficiency = 64. % when operating at full speed. If she designs a custom wheel with the proper diameter, the servo will consume = 8 W of power while lifting a mass = 3 kg . The speed of lifting is closest to:

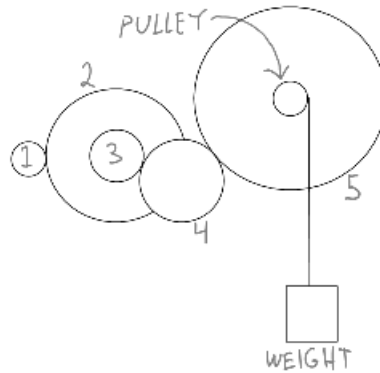
$$\text{Choices} = \left( \begin{array}{l} \text{"A"} \quad 17.4 \\ \text{"B"} \quad 18.5 \\ \text{"C"} \quad 19.5 \\ \text{"D"} \quad 20.6 \\ \text{"E"} \quad 21.6 \\ \text{"F"} \quad 22.7 \\ \text{"G"} \quad 23.7 \\ \text{"H"} \quad 24.8 \end{array} \right) \frac{\text{cm}}{\text{s}}$$





**21 & 22.** (5 points total) A motor is driving Gear 1 in the diagram. The motor's rotational speed = 2400·rpm. Based on the parameters provided, answer the following:

- $N_1 = 21 \cdot \text{teeth}$        $d_4 = 9 \cdot \text{in}$
- $N_2 = 85 \cdot \text{teeth}$        $d_5 = 26 \cdot \text{in}$
- $N_3 = 26 \cdot \text{teeth}$        $d_6 = 6 \cdot \text{in}$
- $N_4 = 60 \cdot \text{teeth}$        $d_6$  is the diameter of the pulley



21. (4 points) How fast is the weight being lifted if the geartrain is 100% efficient?

- Choices =  $\left( \begin{array}{l} \text{"A"} \quad 27.94 \\ \text{"B"} \quad 29.63 \\ \text{"C"} \quad 31.35 \\ \text{"D"} \quad 33.04 \\ \text{"E"} \quad 34.71 \\ \text{"F"} \quad 36.45 \\ \text{"G"} \quad 38.12 \\ \text{"H"} \quad 39.86 \end{array} \right) \cdot \frac{\text{in}}{\text{s}}$

22. (1 point) If the geartrain were not 100% efficient, how would you modify your answer to question 21?

- Choices =  $\left( \begin{array}{l} \text{"A"} \quad \text{"multiply by efficiency"} \\ \text{"B"} \quad \text{"no change"} \\ \text{"C"} \quad \text{"divide by efficiency"} \\ \text{"D"} \quad \text{"not enough information"} \\ \text{"E"} \quad \text{"none of these"} \end{array} \right)$



**23 & 24.** (5 points total) Refer to the figure and parameters above. A motor is driving Gear 1 in the diagram. The weight = 410·lbf, and assume the rope is massless.

23. (4 points) Find the motor torque if the geartrain is 100% efficient.

- Choices =  $\left( \begin{array}{l} \text{"A"} \quad 40.025 \\ \text{"B"} \quad 42.823 \\ \text{"C"} \quad 45.582 \\ \text{"D"} \quad 48.352 \\ \text{"E"} \quad 51.111 \\ \text{"F"} \quad 53.889 \\ \text{"G"} \quad 56.666 \\ \text{"H"} \quad 59.425 \end{array} \right) \cdot \text{in} \cdot \text{lbf}$

24. (1 points) If the geartrain were not 100% efficient, how would you modify your answer to question 23?

- Choices =  $\left( \begin{array}{l} \text{"A"} \quad \text{"multiply by efficiency"} \\ \text{"B"} \quad \text{"none of these"} \\ \text{"C"} \quad \text{"not enough information"} \\ \text{"D"} \quad \text{"divide by efficiency"} \\ \text{"E"} \quad \text{"no change"} \end{array} \right)$



25. (5 points) Your friend let you borrow \$2,500 at a simple interest rate = 6.16% per year, and he allowed you to repay him in a single payment after four years. The amount you owe your friend is closest to ...

- Choices = 

"A"	2882
"B"	2914
"C"	2950
"D"	2983
"E"	3013
"F"	3049
"G"	3083
"H"	3116
"I"	3149
"J"	3183

 ·dollars



26. (5 points) Ann makes a single investment of \$10,000. The investment earns an annual interest rate = 10.98%, compounded quarterly. The future value of her investment after seven years is closest to ...

- Choices = 

"A"	17458.60
"B"	18757.76
"C"	20047.89
"D"	21345.16
"E"	22640.17
"F"	23942.23
"G"	25243.16
"H"	26513.73
"I"	27840.99
"J"	29147.96

 ·dollars



27. (5 points) Bob made a single investment of \$5,000. Assume he earned 3% **per half-year**, compounded semi-annually (i.e. 2x per year) over the first 5 years of the investment and an interest rate = 5.5% **per half-year**, compounded semi-annually over the next 6 years of the investment. The constant annual interest rate (compounded annually) that would result in the same future value after the eleven years is closest to ...

- Choices = 

"A"	8.24
"B"	8.33
"C"	8.41
"D"	8.52
"E"	8.61
"F"	8.72
"G"	8.81
"H"	8.90
"I"	9.00
"J"	9.10

 ·%



28. (5 points) If you take out a loan = 6000·dollars, at an annual interest rate = 6·%, compounded monthly, what will your monthly payment be (in dollars) if you decide to pay it with even payments over 15 years?

- Choices =  $\left( \begin{array}{l} \text{"A"} \quad 416.19 \\ \text{"B"} \quad 50.63 \\ \text{"C"} \quad 20.63 \\ \text{"D"} \quad 58.23 \\ \text{"E"} \quad 43.04 \\ \text{"F"} \quad 55.69 \\ \text{"G"} \quad 360.01 \\ \text{"H"} \quad 45.57 \\ \text{"I"} \quad 617.78 \\ \text{"J"} \quad 257.78 \end{array} \right)$  ·dollars

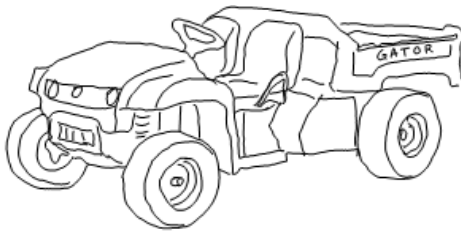


29. (5 points) You would like to start early on saving for a home purchase. You decide that you will attempt to make steady monthly deposits of \$150 per month into an account earning an annual interest rate = 3·%, compounded monthly. Assuming you never miss a deposit, the minimum amount of time it will take to exceed your savings goal = 300000·dollars is closest to:

- Choices =  $\left( \begin{array}{l} \text{"A"} \quad 631 \\ \text{"B"} \quad 674 \\ \text{"C"} \quad 718 \\ \text{"D"} \quad 762 \\ \text{"E"} \quad 805 \\ \text{"F"} \quad 849 \\ \text{"G"} \quad 893 \\ \text{"H"} \quad 936 \\ \text{"I"} \quad 980 \\ \text{"J"} \quad 1 \times 10^3 \end{array} \right)$  ·months



**30. & 31.** (5 points total) Dr. Scoggin is considering the purchase of a John Deere Gator™ utility vehicle for his alligator farm. The vehicle's price = 17500·dollars and he expects that he will use the vehicle for 8 full years before selling it. He estimates that at that time, it will have a value = 1050·dollars. He also estimates that maintenance and other costs on the vehicle during the 8 years will be approximately = 810·dollars every 6 months (paid at the end of each 6 month period). Dr. Scoggin anticipates that the purchase of the vehicle will allow him to reduce his staff by one part-time employee who earns a wage =  $7.25 \cdot \frac{\text{dollars}}{\text{hour}}$ . On average, this employee works 420 hours/year. Dr. Scoggin pays taxes and insurance on the wages of this employee at the rate of ~18% (total, in addition to the wages themselves). For simplicity, assume wages, tax, and insurance are constant payments paid at the end of each month. Assuming an annual interest rate of 4%, and monthly compounding regardless of the frequency of a given cashflow, answer the following questions:



30. (4 points) Dr. Scoggin will either buy the Gator™ and lay off one employee, or he will not buy the Gator™, and will keep the employee. The absolute difference in present value of the costs associated with these two options over the 8 years is closest to...

- Choices =  $\left( \begin{array}{l} \text{"A"} \quad 0.00 \\ \text{"B"} \quad 2002.82 \\ \text{"C"} \quad 2200.83 \\ \text{"D"} \quad 2389.44 \\ \text{"E"} \quad 2581.02 \\ \text{"F"} \quad 2774.01 \\ \text{"G"} \quad 2963.38 \\ \text{"H"} \quad 3155.88 \\ \text{"I"} \quad 3346.94 \\ \text{"J"} \quad 3539.37 \end{array} \right) \cdot \text{dollars}$

31. (1 point) Which option should Dr. Scoggin choose to minimize the present value of the costs over the 8 years?

- Choices =  $\left( \begin{array}{l} \text{"A"} \quad \text{"buy the Gator and lay off the employee"} \\ \text{"B"} \quad \text{"don't buy the Gator and keep the employee"} \\ \text{"C"} \quad \text{"there is no difference in total present costs for the two options"} \end{array} \right)$

Formulas

$$I = Pni$$

$$F = P(1 + ni)$$

$$F = P(1 + i)^n$$

1 lb = 4.448 N
1 in = 25.4 mm
1 m = 3.281 ft
g = 9.81 m/s <sup>2</sup>

$$P = F(1 + i)^{-n}$$

$$F = A \left[ \frac{(1+i)^n - 1}{i} \right]$$

$$P = A \left[ \frac{(1+i)^n - 1}{i(1+i)^n} \right]$$

Scratchwork

# THIS IS YOUR EXAM FORM # --->

ExamForm = 24

While you are waiting to begin your test, please complete problem 1, shown here:

1. (2 point deduction for failure to complete this problem!)

- Write in all of the indicated information in the boxes of your response form.
- Darken the appropriate circles to encode the corresponding information.
- Once the exam begins, do not forget to write your name on this exam and sign the Honor Statement.

Bubble:	For Course	Section:
91	H01 - Crittenden	TR 10-12:50
92	H02 - Easley	TR 2-3:50
93	H03 - Swanbom	TR 12-1:50
94	H04 - Reeves	TR 8-9:50
95	H05 - Scoggin	MW 8-9:50
96	H06 - Moller	MW 10-11:50
01	001 - Swanbom	MW 2-3:50
02	002 - Scoggin	TR 12-1:50
03	003 - Swanbom	TR 8-9:50
04	004 - Corbett	TR 4-5:50

Notes:

- If your last name is too long, just write the first 10 letters.
- "F.I." and "M.I." are your first and middle initials, respectively
- Your "Username" is the first part of your LATech email address
- For "Section" use the guide provided to the right
- Your "Exam Form" is printed on the upper right corner of this page.
- Indicate "ENGR" as the "Program"

Exam Form		Program	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	BIEN
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	CMEN
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	CVEN
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	CYEN
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Last Name	F.I.	M.I.	LA Tech Username	Course #	Section <small>(last 2 digits)</small>																																												
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Also Note:

- Mobile phones or other electronic devices (other than FE-approved calculators and plain timepieces) are not allowed on this exam. If you have non-approved devices (phones, smartwatches, mp3 players, etc.), please deposit them at the front of the room for the duration of the exam. Don't forget to retrieve them when you prepare to depart.
- Please place any bags you might have brought under your desk for the duration of the exam.
- If you need additional scratch paper, please ask your proctor. Turn in any scratch paper with your exam, even if unused.
- If you have questions during the exam, please remain in your seat and raise your hand. A proctor will come to you.
- Please use a restroom now if you need it so as to minimize potential disruptions during the exam.
- Unless given permission beforehand, there is no food or drink allowed (with the exception of a clear water bottle).



163\_ENGR122\_E2

ExamForm = 24

ind = 4

Key =

	1
1	"A"
2	"D"
3	"A"
4	"B"
5	"C"
6	"B"
7	"D"
8	"B"
9	"G"
10	"I"
11	"E"
12	"A"
13	"F"
14	"I"
15	"D"
16	"B"
17	"C"
18	"D"
19	"B"
20	"A"
21	"A"
22	"B"
23	"C"
24	"D"
25	"H"
26	"D"
27	"H"
28	"B"
29	"C"
30	"H"
31	"B"

