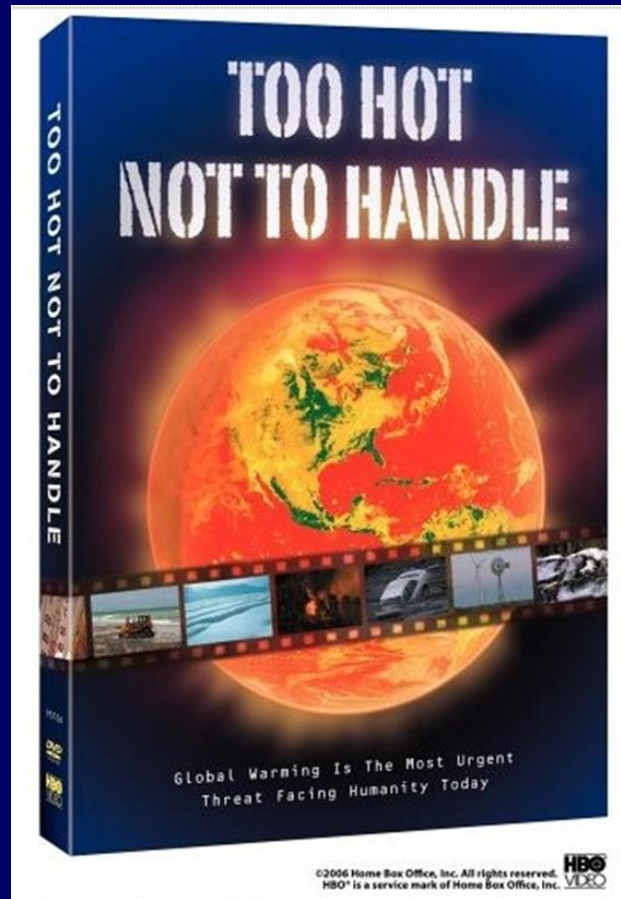


Friday Oct 21st

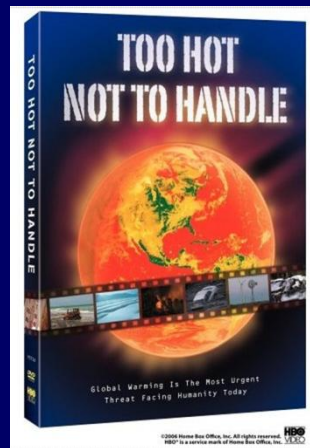
**Topic # 10 wrap up
Group Bonus Opportunity
G-4 Answers
and
Clicker Questions
from the
Midterm Exam**

Topic #10 Wrap Up: Systems & Feedbacks

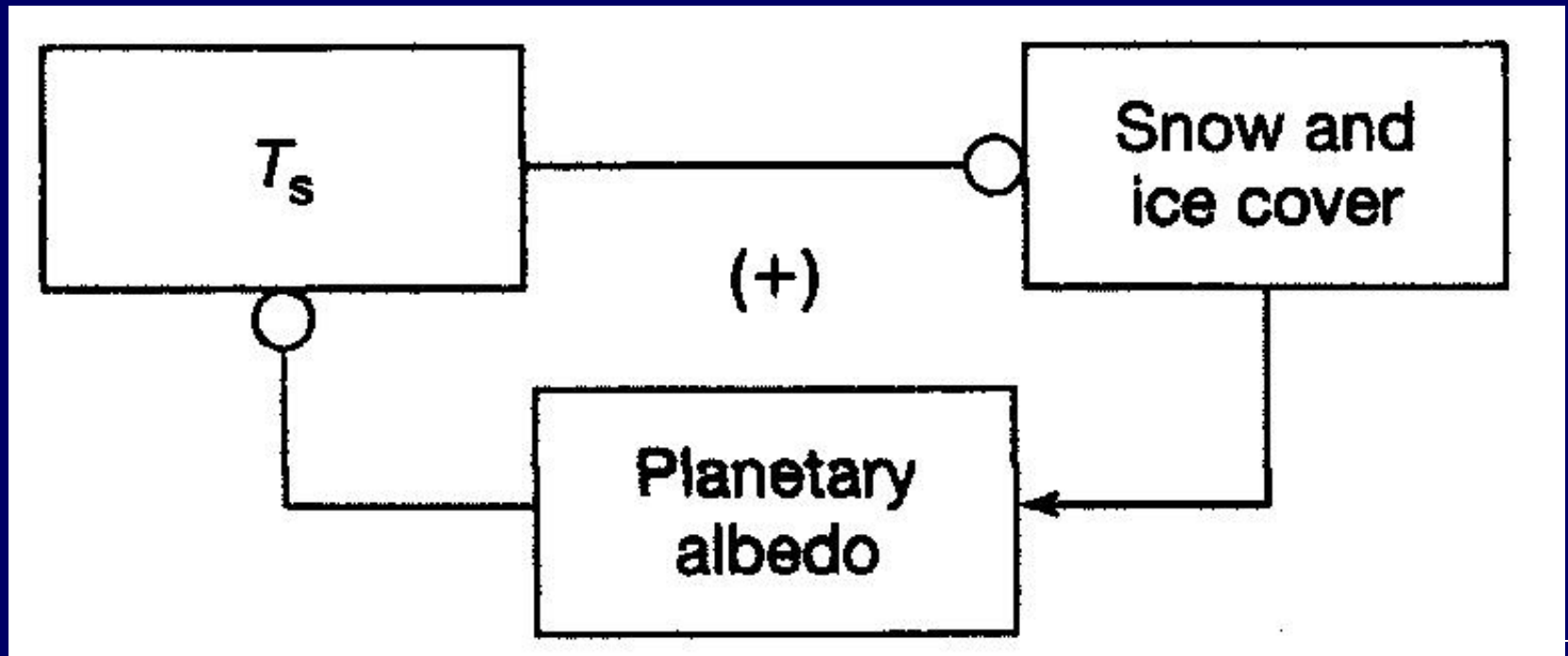


GROUP BONUS POINT CHALLENGE - PART 1:

State which feedback loop was described in the film and sketch the **FEEDBACK DIAGRAM** for it on a piece of paper w/ **GROUP #** and names on it.

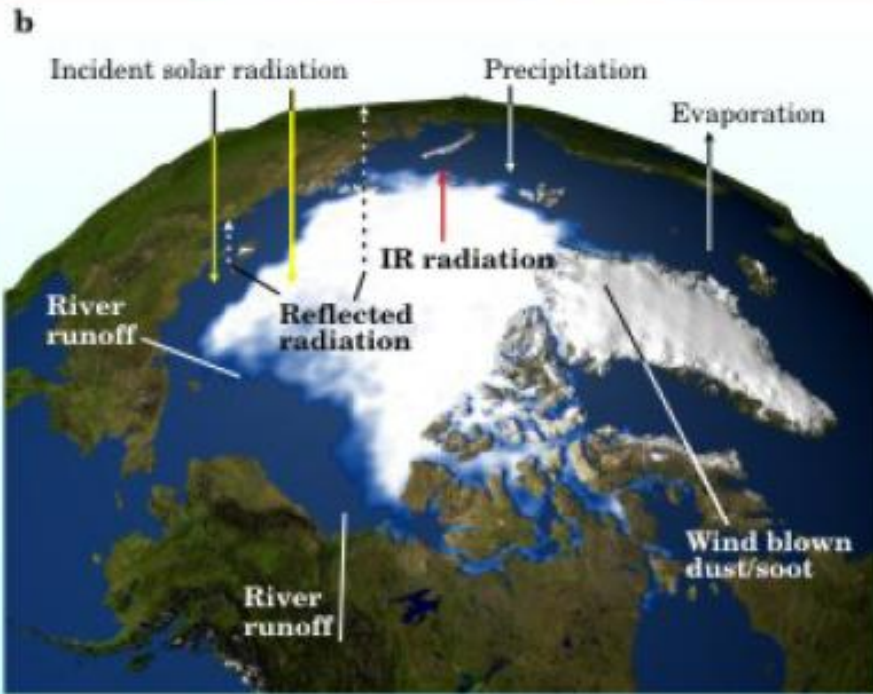


Answer for Part I: SNOW AND ICE ALBEDO Feedback



REMEMBER FEEDBACK LOOPS:

Is this one positive or negative?



BONUS POINT CHALLENGE - PART 2:

NOW – on the back of the paper, in your group, complete the feedback loop on **page 59** by linking the components with the proper coupling arrow symbols as used in the SGC text

albedo

START
HERE

Extent of
ice cover

SW
radiation
absorbed



Amount of
melting

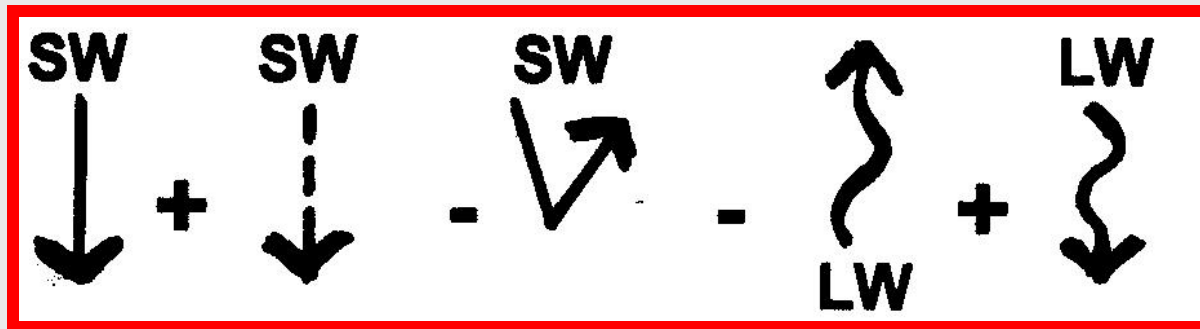
Ocean
temperature

WRAP –UP of G-4 ASSIGNMENT

Applying the Energy Balance Terms

Which component or components working together are most directly related to or responsible for the observed phenomenon???

1 – #12 : Left side of equation




13 - #15: Right side of equation

H + LE + G

**THE G-4
ANSWERS**

The LEFT side of the equation:

$$R_{NET} = \downarrow_{SW} + \downarrow_{SW} - \swarrow_{SW} - \uparrow_{LW} + \downarrow_{LW}$$

1.  gases of atmosphere scatter shorter blue wavelengths



2. 



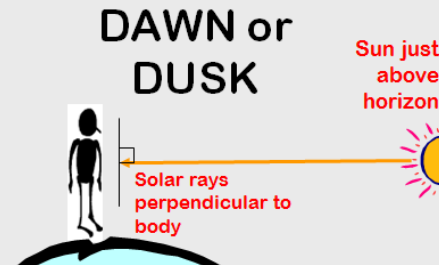
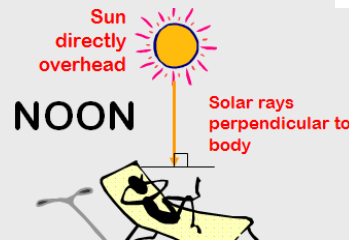
3. 





4. Noon: more

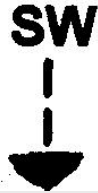


& dusk: more



5.  + 

together = the Greenhouse Effect

6.  (dust, thicker atmosphere scatters longer red/orange wavelengths)


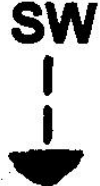


7.  radiates day & night; camera senses IR




8. 




9.  leads to distinct shadows, while diffuse SW  radiation does not





10.  All wavelengths of visible part of spectrum are scattered & transmitted in a colored spectrum by raindrops



11. Attempt to increase absorption & reduce  into eyes; reduces glare



12. More  is absorbed, leads to more  which can then warm up car



The RIGHT Side of the Equation:

$$= H + LE + G$$

13. **H** Hot air (less dense than surrounding cool air) rises in a convection current & lifts balloon



14. Wet mud evaporates from pig & cools him:
also heat from pig's body is conducted into soil:



LE

G

15. June is hot & dry in Tucson. Dry, hot air can “hold” more water vapor, so water in cooler pads is evaporated easily. Hence more energy goes into **LE** instead of **H** This cools the house!



THE MIDTERM EXAM

Your grade is on the top of Page 2 of the Exam
(not on the IF-At form)

EXAM GRADE: IF-AT form: 75 + Write-In part 25 =
(out of 75 pts) (out of 25 pts)

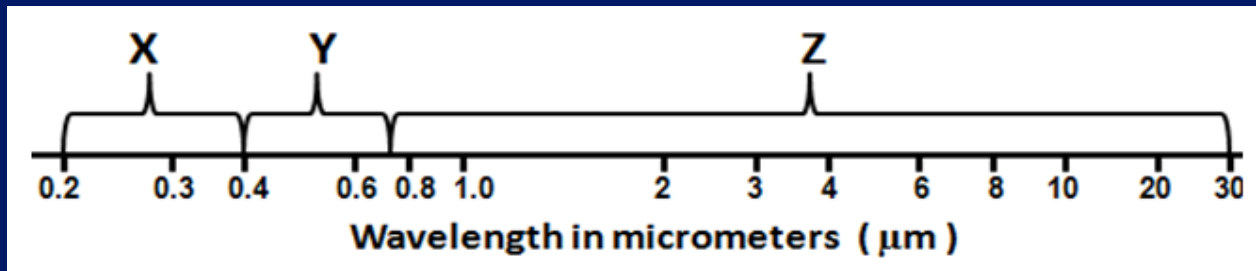
100

Out of 100 points

HOW YOU RATED THE TEST:

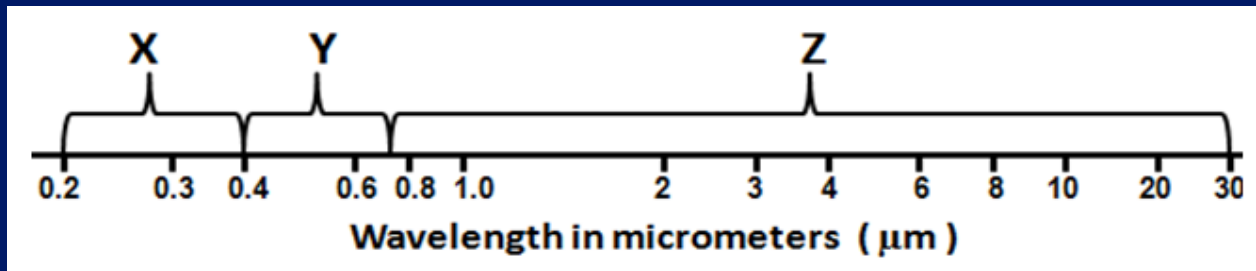
Extremely Difficult :	1 – 5 %
Difficult and Unfair:	1 – 5 %
Difficult but Fair:	53 – 59 %
Just Right:	31 – 37 %
Easy or “Piece of Cake	3 %

Q 7. The Earth cools itself primarily by radiating energy it has absorbed back out to space. **This is accomplished by emitting electromagnetic radiation from which segment of the electromagnetic spectrum?**



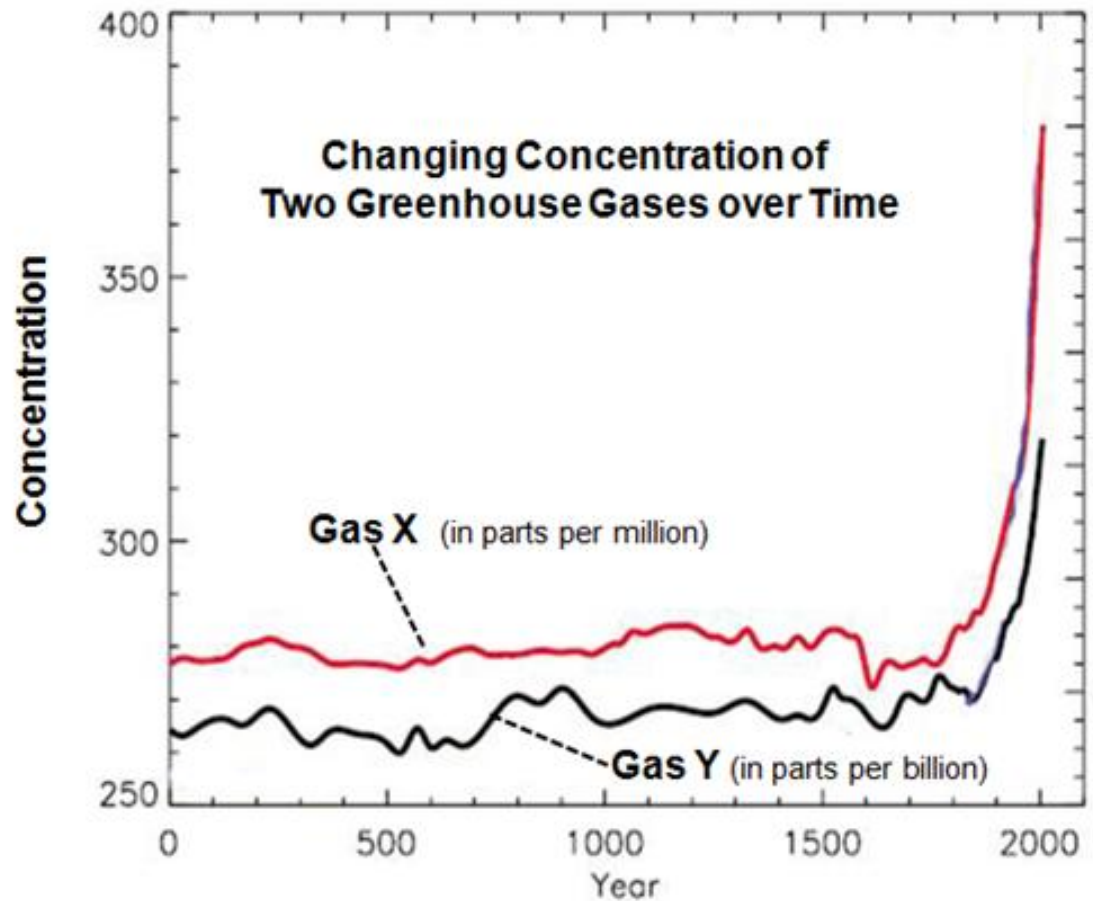
- 1) Segment X only
- 2) Segment Y only
- 3) Segments X & Y together
- 4) Segment Z only

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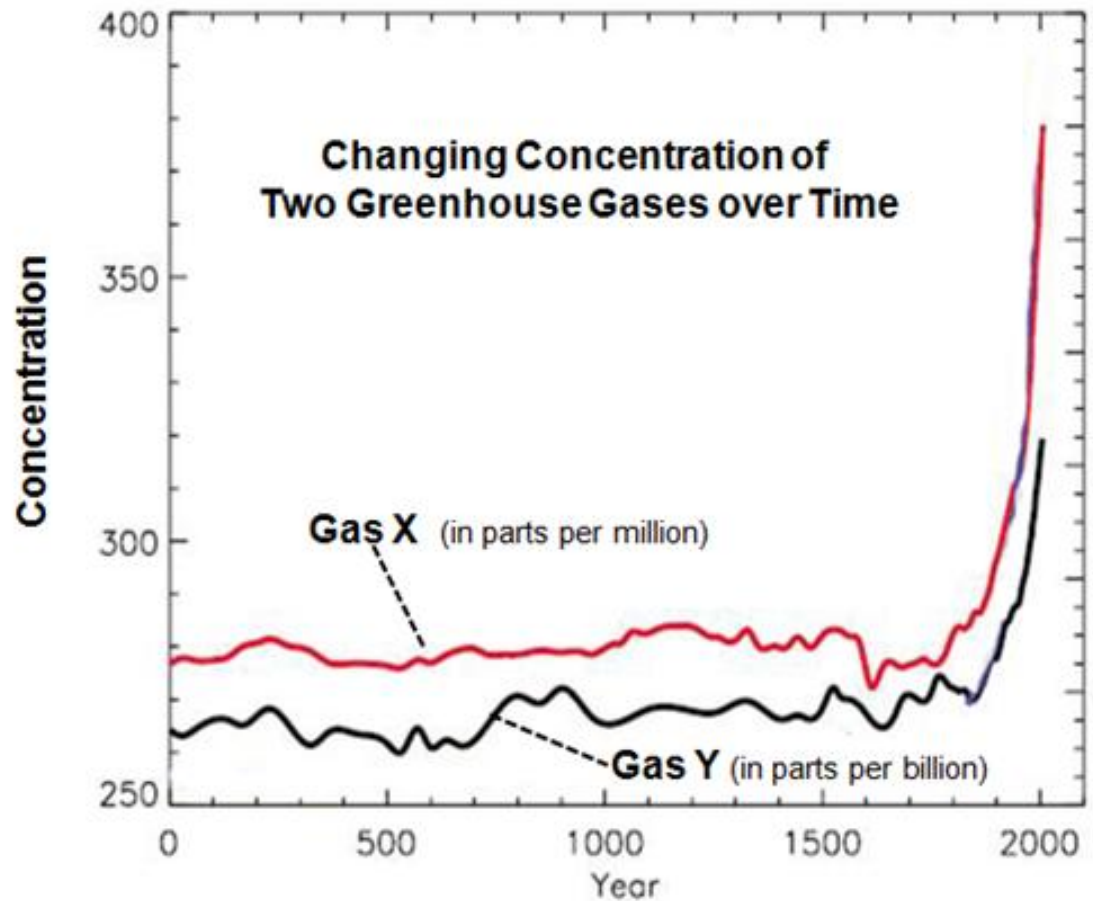
- 1) Segment X only
- 2) Segment Y only
- 3) Segments X & Y together
- 4) Segment Z only

Q 12. Which of the following best describes the kind of global change revealed by the time series plots:



- 1) abrupt (or step) change
- 2) a constant mean with no trends
- 3) quasi-periodicity in the variance
- 4) totally random variability

Q 12. Which of the following best describes the kind of global change revealed by the time series plots:



1) abrupt (or step) change

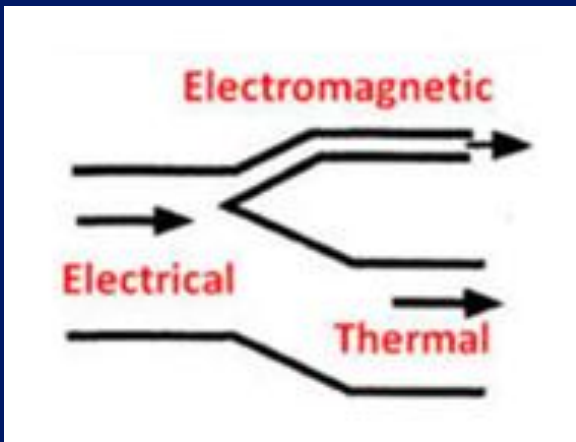
2) a constant mean with no trends

3) quasi-periodicity in the variance

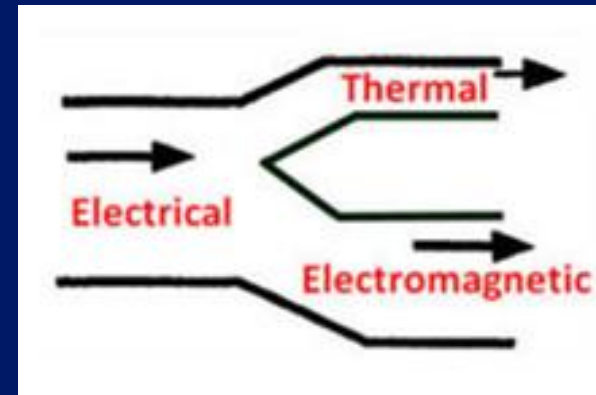
4) totally random variability

Q 24 - Which energy flow diagram below best depicts the diagram of a well-designed, highly energy-efficient LED type of light bulb?

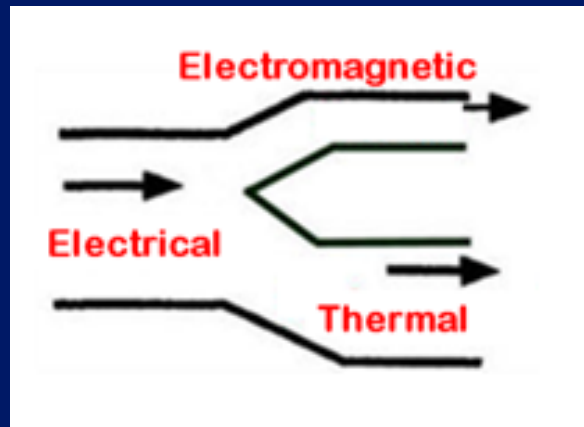
(1)



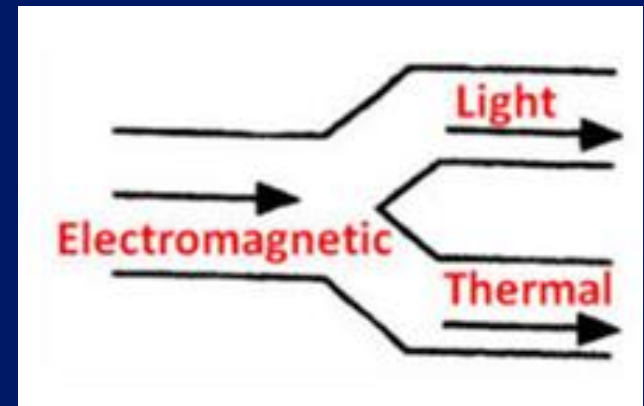
(2)



(3)

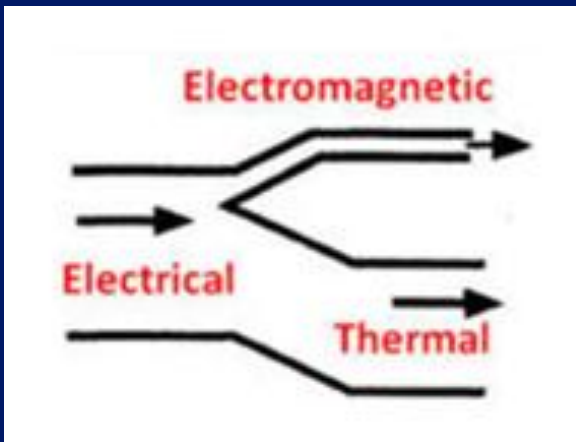


(4)

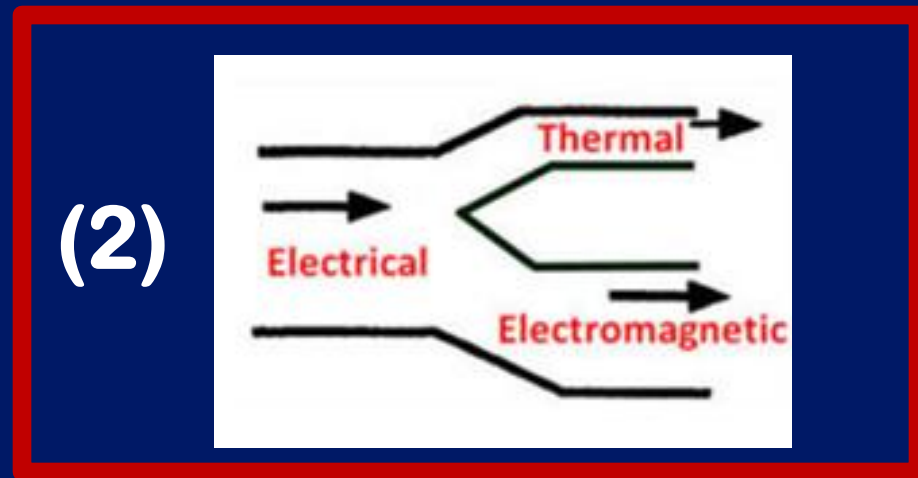


Q 24 - Which energy flow diagram below best depicts the diagram of a well-designed, highly energy-efficient LED type of light bulb?

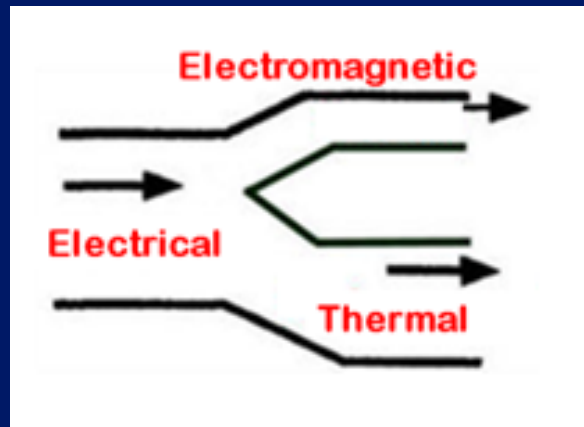
(1)



(2)



(3)



The ONE with the most narrow energy flow “pipe”!

MIDTERM POINTS RECOVERY OPPORTUNITY!!

Here's how you may earn up to HALF of the points you lost on up to FOUR (4) multiple choice questions:

1. Select 4 multiple choice or write-in questions that you got wrong and that you still don't understand very well.
2. For each question explain:
 - a) Why you answered as you did
 - b) Why your answer(s) were wrong
 - c) What the correct answer is, and
 - d) Why it is correct (explain in your own words)
3. For write-in Q's # 26 -28, do the same, but recovery of up to a maximum of 3 points is the limit)
4. Your paper must be **TYPED & submitted WITH YOUR EXAM** to Dr H no later than class time on **Wed Oct 26th**