ENGLISH 206
FINAL EXAM
SUMMER 2004-2005

Name:_____ **Instructor:** _____

Time: 2 ½ hours **Section:** _____

1. You are a senior engineer at Ford Motor Co. Headquarters. You would like to see the marketing of the Ford Focus, one of the company's first vehicles designed to address some of the needs of the aging population, in Lebanon.
   However, through your intensive research of this region, you found out that road conditions in Lebanon differ immensely from those of other countries in which you have previously marketed the vehicle. For example, traffic lights are not always present and their inadequate use does not ensure the safety of crossing vehicles; pedestrian crossings are not clearly marked and people rarely use them; streets are narrow and hardly have parking space; and so on.
   Using the relevant ideas in the passage about the different efforts to create vehicles that are ergonomically attuned to the needs and wants of older drivers, write to the CEO of Ford Motor Co. to propose a design for an elderly-friendly car suitable for the Lebanese road conditions. Use your discretion to supplement this information with any other required details from your general knowledge.

   a. Use the memo format and address your proposal to Mr. John Smith, CEO, Ford Motor Co., North America.
   b. Write your report on page 2, paying special attention to language use, layout and design. **(60 points)**

2. The format, layout and message of the following draft letter need revision. Edit and rewrite this letter on page 7 to make it clear, correct, consistent, courteous, concise, etc. Note that though there are no errors in the information of the inside address or outside address, there may be errors in the format. **(40 pts.)**

Grandview Residence
Gerald Larson, M. D., President
Grandview, Michigan

June 9, 2005

Mr. Alan Medina
1045 Davis Drive
Grandview, Michigan
U. S. A.

Dear Mr. Larson:
Thank you, Dr. Larson, for your support and encouragement, which I am confident you will continue to provide during the investigation I am proposing here and which I am going to start soon. I hope you find my proposal to your satisfaction. I am pleased to submit to you my proposal here.

As you know, the purpose of my proposed investigation is to find a way to enhance the quality of life for residents. Lack of physical and mental stimulation can seriously undermine the general health and well being of these senior citizens. I hope you find me qualified to conduct such an investigation in spite of my limited experience in the field. I myself am not sure I can complete such a project, but I feel someone should do something about the problem at hand, which has long been neglected. You being the president should be aware of this, and I find that it is my duty to inform you. This negligence is affecting our reputation as leaders in residential care for the aged. However, by finding a cost-efficient means of enriching the miserable lives of those wretched aged residents, which we are supposed to be doing, our above-mentioned reputation will be assured.

I am grateful to my supervisor, Mary Ortiz, for her valuable assistance, and I congratulate you on your management of Grandview Residence. In general, you are a good president! Feel free to contact me if you need anything. I am sure I can help you.

Yours gratefully,
Mr. Alan Medina, Nurse's Aide

Alan Medina

Copy: Proposal

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Time Allowed: 2 1/2 hours

Name:_____

New Wheels for Grandma

1. By 2011, the baby boom generation will begin to turn 65, and by 2030, one in five people will be age 65 or older, according to US. Census Bureau projections. The size of the older population is projected to double over the next 30 years, growing to 70 million by 2030.

2. Thanks to the wonders of modern medicine, clean living, and a positive outlook, a large percentage of these older Americans are expected to still be tooling down the highways. And car manufacturers and parts suppliers are doing their part to make sure these gray ghosts can keep on truckin' in comfort, style, and safety.

3. Ford Motor Co. of Dearborn, Mich., Detroit-based General Motors, and automotive interior supplier Lear Corp. of Southfield, Mich., have all undertaken studies to help them understand the needs and wants of older drivers in an effort to create vehicles that are ergonomically[1] attuned to them.

4. "Aging baby boomers still see themselves as active, vital people," said Jaron Rothkop, senior engineer for advanced product development at Lear Corp. "The trick is to design vehicles that have enablers for this population, but that don't look like cars for the aged. They still want a sporty look, even if they are more concerned about safety and how easy a car is to use.

5. To figure out the right mix of style and function for this group, Lear Corp. conducted an 18-month study on the aging baby boomer population. The goal was to understand the physical limitations of the group and how best to meet those needs.

6. The research, dubbed the Masters Study, involved polling a consumer panel of men and women aged 50 to 70, with an average age of 65 years old. Lear studied vehicle ingress and egress[2], seating adjustments, controls, and even display colors. The consumer panel helped evaluate new ideas and provided their thoughts on

which features were helpful and desirable, and which ones they just didn't find appealing, according to Rothkop.

7. Ford took a different approach to defining the needs of the aging baby boomers. Like Lear, it conducted consumer research, but Ford also used a unique tool to help young engineers know what it feels like to be a 65-year-old trying to operate a car.

8. This training and development tool, the Third Age Suit, resembles nothing so much as a cross between an astronaut's suit and a beekeeper's protective gear. According to Fred Lupton, North American program ergonomics supervisor for Ford, the Third Age Suit "lets engineers slip into another generation, and feel for themselves what changes the body goes through that impact how a driver relates to a vehicle."

9. The suit, which was designed in collaboration with the University of Loughborough in England, is essentially a pair of coveralls padded with materials that add bulk and restrict movement in key areas of the body, such as the knees, elbows, stomach, and back. Rubber gloves that reduce the sense of touch and goggles that simulate cataracts complete the ensemble.

10. The suit seems to be doing its job. One 20-something marketing person at Ford who put on the suit said, "You're not jumping in and out of a car wearing that thing. When you put it on, you really get the feeling that your mobility is limited, and you can't react quite the same way you're accustomed to."

11. General Motors has teamed up with the Beckman Institute for Advanced Science and Technology at the University of Illinois in Urbana-Champaign for a multiyear study on driver distractions and how well humans interact with in-vehicle technologies. Researchers hope to learn how motorists focus on the driving task when facing distractions such as vehicle instruments and other in-vehicle technologies. They will perform real-time measurements, using eye-glance movements and rudimentary brain imaging. They also will evaluate the effectiveness of training strategies for enhancing drivers' cognitive, perceptual, and motor skills, especially those of older adults who may have difficulty with those skills.

BUILDING A GRAYER CAR

12. The goal of this research isn't to produce an old folk's car (insert your own Cadillac, Lincoln Town Car, or Oldsmobile joke here). Rather, it's to refine the design of existing vehicles and to add enabling technologies that make these vehicles easier and safer for an aging population to use.

13. The bulk of these changes have been targeted at the three major physical changes that aging people encounter: decreasing range of motion and strength, decreasing ability to manipulate fine controls, and lessening visual acuity.

14. "People age 60 and older experience up to a 25 percent decrease in their range of motion and strength," said Ford's Lupton. "This affects their larger body motions, such as the ease with which they can get in and out of a car; their ability to bend over to adjust the seat controls and load the trunk of the car; and their ability to twist around to see over their shoulders when parking or changing lanes."

15. The Ford Focus, one of the company's first vehicles designed using the Third Age Suit, addresses the ingress-egress problem by providing an expanded door opening radius, an elevated driver seating position, and more headroom. The car also includes strap handles on the inside doorframe, so drivers can grab and pull themselves into position, according to Lupton.

16. The company's Lincoln Town Car, whose average buyer is over 60, offers a driver's seat feature that moves the seat to the end of its adjustment track to provide more room for entering and exiting the car. When the ignition key is inserted, the seat returns to its original position, so the driver doesn't have to twist around to adjust it before taking off.

17. "Older people want to be focused on driving," Lupton said. "They don't want to multitask, so it's important to give them instruments they can quickly read and adjust, and then let them get back to focusing on driving."

18. The Town Car also includes adjustable gas and brake pedals, so drivers can sit farther from the steering wheel, and a specially designed instrument panel. The speedometer and tachometer can be switched from their traditional readouts to digital ones that are easier for older drivers to read.

19. Toward this end, Ford is assessing new instrument panel layouts that use larger numbers on the radio, temperature controls, and navigation system, according to Lupton. They're also looking at making controls larger, with more spacing between them. In addition, Ford is using tactile coding, such as bumps and dimples, on controls to make it easier for older drivers to distinguish among them by touch.

20. A 2003 Ford Taurus Telematics to Safety Concept Car adds warning systems that use radar and cameras to improve safety for drivers. Some of these systems include radar and vision systems that allow the vehicle to "see" and estimate the likelihood of potential traffic threats, and warn the driver; side-mounted cameras that help drivers see pedestrians, bicycles, and merging vehicles in their blind spots; and a low-light, forward-facing camera that serves as a lane departure system.

BEFORE ITS TIME

21. In 2000, Lear Corp. introduced its TransG concept vehicle, which was designed specifically for the aging baby boomer population. The "transgenerational" car included a powered rotation seat that swiveled outward to a 45-degree angle, which research study participants identified as the best angle for entering and exiting a vehicle. Leather-trimmed seats provided less friction, making it easier to slide in and out of the seat. Instead of moving the seat forward and back, the instrument pod moved toward the driver from its most forward location to a memory position programmed by the driver.

22. The vehicle also included a four-point seat belt, which fastened in the front, rather that forcing drivers to twist around and access a side buckle. This belt met the desire of the audience to have extra safety features, was easy to use, and yet didn't feel like an old person's tool, according to Lear's Rothkop. "The four-point belt has a racing theme, since it's like the ones used in race cars, and this gives it young appeal. Yet it still addresses this audience's limited mobility. It's a good example of an enabler that doesn't feel like something intended for a 'special-needs' driver."

23. Lear Corp. is working on a concept station wagon in conjunction with the Massachusetts Institute of Technology Media Lab. This vehicle includes obstacle detection systems that address an older driver's inability to twist around and see something in the blind spot, as well as specially designed cargo areas that make for easier loading of everything from groceries to golf clubs.

24. According to Rothkop, Lear's emphasis is on developing the right human machine interface to determine how an aging population perceives light and touch. "If the technology is not presented in a way that is easy to use and appealing to the driver, you set back the pace of implementing what could be really worthwhile innovations," he said.

25. The concept vehicle is using information gleaned from Lear's Masters Study to determine the best colors, lighting levels, and rate of change in lighting for instruments and warning sensor displays. This concept station wagon includes a turn signal that vibrates if the driver tries to change lanes when it's not safe, an object detection system that shows up as a light running up the A-pillar, gas pedals that offer resistance when the driver is too close to the car in front of it, and a seatback that changes position and exerts pressure when the car is too close to an object behind it.

AFTER DARK

26. GM has incorporated one innovative feature into its Cadillac DeVille that is intended to address the visual acuity problems of older drivers. It's only appropriate that a feature like improved night vision make its way into the

Cadillac. According to Pat Kemp, DeVille marketing manager, "Pre-boomers traditionally make up the car's primary customer base." In less politically correct terms, pre-boomers are drivers who are now 65 and older.

27. Cadillac's Night Vision uses infrared technology developed by Raytheon Systems Co. (which also developed the night vision system used extensively during the Gulf War), to provide additional visual information beyond what the driver can see at night. Depending on conditions, Night Vision allows drivers to see down the road three to five times farther ahead than low-beam headlamps, according to a Cadillac spokesperson.

28. The system's infrared technology creates pictures based on heat energy emitted by objects in the viewed scene. The image is projected as part of a heads-up display on the windshield, near the front edge of the hood, in the peripheral vision of the driver.

29. The DeVille also includes ultrasonic rear parking assist technology that uses audio and visual cues to convey information on how close the vehicle is to any object behind it. Four sensors on the back of the vehicle send out ultrasonic waves when the car is driven in reverse. The sensors pick up the echo of a signal when it bounces off an object; this information is triangulated to determine relative distance.

30. Among the older set in southern Florida, rumor has it that an older adult who still drives, especially at night, will never want for company. If carmakers keep up their efforts, those older folks are going to have a lot more company on the roads, in the malls, and wherever their hot rods take them.

Source: Ehrenman, G. (2003, April). New wheels for grandma: Engineers are adding enabling technologies that make cars easier and safer for an aging population to drive. Mechanical Engineering, 125.

[1] Ergonomics: the study of the conditions in which people work most effectively with machines
[2] entering and exiting