Assignment 1. Asking and Answering Questions

I. Corrections:

The following questions are incorrect. Rewrite them to be correct.

1. Have been you here long?
2. Part is this important?
3. There is any area you to particularly like to study?
4. Who do work you under?
5. Can tell me you what training kind you have had of?
6. Part where go does this?
7. Beneficial what in ways this is?
8. Above why is the motor this part this?
9. Standard this is a feature?
10. Improve efficiency this does how?
11. Manufactured this was where?
12. Turn this axle how fast does?
13. Located is where this?
14. Project this is any you that you are working now on?
15. Last it can long how in the sun?
16. Any problems are there with this clamp?
17. Do like you what about company this?
18. Part designed this is how?
19. Changes the were to what the adaptors?
20. Conditions what under should this be operated?

Assignment 2 Giving Instructions - The Ipod

I. Key Verbs For Instructions

A. Commands for operating devices

Open the cover	and transfer / see the file
Connect the cable	charge the battery
Press the central button	display the data
Press the left button	to go / to play the previous menu
Hold down	to click on a item
Turn	check the volume
Plug in the wire	lock the settings
Switch on / off	pause the music
Lock	choose the album
Browse the menu	record the song
Adjust the volume	put in the earphones

Comprehension

Task 1. Look at the following incorrectly worded instructions and rewrite them

so that they make sense.

1. scrollwheel in the order turn to volume the adjust
   Revised: Turn the scrollwheel in order to adjust the volume.

2. press the switch off if and hold you to the Ipod, pause button want.
   Revised: If you want to switch off the Ipod, press and hold the pause button.

3. in order to scroll down and select genre, albums, select browse songs or artists.
   Revised: Scroll down and select browse in order to select genre, albums, songs or artists.

4. battery, to electrical recharge port your connect the recharger and to the cable the to firewire
   Revised: To recharge your battery, connect the cable to the electrical recharger and to the firewire port.

5. settings, button to view information song, battery level, the press central
   Revised: To view song information, settings, battery level, press the central button.

Task 2: Are the following commands logical?	*Yes*	*No*
6. Press the information and lock the battery.	[ ]	[ ]
7. Lock the menu and transfer the settings.	[ ]	[ ]
8. Connect the cable to the computer and press the button.	[ ]	[ ]
9. Switch on the highlighted song and press record.	[ ]	[ ]
10. Open the cover, put in the firewire cable, charge the battery.	[ ]	[ ]
11. View the volume and scroll down the port.	[ ]	[ ]
12. Pause the song, check the volume and hold down the button.	[ ]	[ ]

In asking questions about people and their background and / or projects, you can begin with any of the following words.

Can Could Will Would Shall Should May Why Do Did /Does Who What Which When
How Must Has Have Am Is Are Was Had Might Where Were

1. Can you.....[help me / move this / unscrew that bolt, etc?]
2. Did you..... [find it / see this / measure that voltage, etc?]
3. Have you....[gone there / tested it / done the experiment, etc?]
4. Could you...[find time to help me / study this / test this for me, etc?]
5. Does.....[anyone know about this / he have knowledge of this, etc?]
6. Am I..... [involved / too stressed / able to do this, etc?]
7. Will..... [you do this for me / you help me, etc?]
8. Who.....[responsible for this / is in charge / is the manager, etc.?]
9. Is.....[this important / this going to change anything, etc?]
10. Would..... [help me on this project / this be a factor, etc?]
11. What..... [does this do / did he do / is going to happen, etc?]
12. **Are.....** [you going to help out / we going to do this project, etc?]
13. Shall..... [we go / we do this project, etc.?]
14. Which..... [tool and method are you going to use / is best, etc?]
15. Was..... [this really important / this a factor, etc?]
16. Should..... [we go quickly / we do this soon, etc?]
17. When..... [we do we go / does this take place?]
18. Had..... [you gone there, what would have happened, etc?]
19. May..... [we do this today / we have permission?]
20. How..... [was this done / long will it take / often does it happen, etc?]
21. Might..... [we do this later on / he do this if he has time?]
22. Why.....[hasn't this been done, was this not done yet, do you do thiis, etc?]
23. Must.....[we do this / this be done today, etc?]
24. Where...[did you go / was this going on / did you do the project, etc?]
25. Do..... [you think that will be a problem / you have a plan, etc?]
26. Has..... [this happened / that been a factor?]
27. Were.....[you involved / were busy / you worried, etc?]

Task 2

1. If you want to understand the function of a part what's the right question?
Examples: A. What does this part do? B. Is this part important? *C. How does this part work?*

2. If you could not identify a part, what's the right question?
Examples: *A. What is this next to the fan?* B. Where did this solenoid values come from? C. This part is too big, isn't it?

3. If you didn't understand a component or feature of some machine, what kind of question would you ask?
Examples: *A. How is this part designed / put together / formed?* B. Is this a standard feature? C. What is this made of?

4. If you didn't know the position of some machine or part, what's the right question?
Examples: A. What is this here? *B. How come this part is on the bottom?* C. When does this turn on?

5. If you needed to know the size or dimension of something, what kind of question would you ask?
Examples: *A. How long...* B. How often... C. How expensive...

3. TO: NAME DEPARTMENT / LOCATION DATE
Benny Spellman Materials Dept. Aug. 10, 04
FROM: Bill Evans Construction Dept.
SUBJECT: Last week Blossom Dearie was cutting a steel beam (for our project), when she accidently moved the beam on to her arm.

	Given	Not Given
13. Name, occupation, and sex of injured worker:	[ ]	[ ]
14. Place and date/time of accident:	[ ]	[ ]
15. Description of how the accident happened:	[ ]	[ ]
16. Immediate causes of the accident:	[ ]	[ ]
17. Contributing causes:	[ ]	[ ]
18. Witness(es):	[ ]	[ ]
19. Corrective action taken:	[ ]	[ ]

4. TO: NAME DEPARTMENT / LOCATION DATE
Charlie Ventura Chemical Engineering Jan 1, 04
FROM: Clara Rockmore Chemical Engineering

SUBJECT: This morning at 10:00, at this lab, Coleman Hanks, the manager-trainee, (male 24) was polishing a pipe when the pipe exploded. Dave Douglas and I both witnessed the accident. Coleman was not properly equipped to polish the pipe. He was taken to the hospital and treated.

	Given	Not Given
20. Name, occupation, and sex of injured worker:	[ ]	[ ]
21. Place and date/time of accident:	[ ]	[ ]
22. Description of how the accident happened:	[ ]	[ ]
23. Immediate causes of the accident:	[ ]	[ ]
24. Contributing causes:	[ ]	[ ]
25. Witness(es):	[ ]	[ ]
26. Corrective action taken:	[ ]	[ ]

5. TO: NAME DEPARTMENT / LOCATION DATE
Charles Mingus Organic Chemistry Feb 2, 03
FROM: Miles Davis Organic Chemistry

SUBJECT: This is to report that a terrible accident happened this morning. It happened at 10:30 a.m on
the second floor.
I think the immedicate cause is an electrical short. No one actually saw the accident happened.

	Given	Not Given
27. Name, occupation, and sex of injured worker:	[ ]	[ ]
28. Place and date/time of accident:	[ ]	[ ]
29. Description of how the accident happened:	[ ]	[ ]
30. Immediate causes of the accident:	[ ]	[ ]
31. Contributing causes:	[ ]	[ ]
32. Witness(es):	[ ]	[ ]
33. Corrective action taken:	[ ]	[ ]

Assignment 3 - Saftey

Accident Investigation Procedures

If there is an accident that results in an injury (medical case), and/ or damage of equipment and material, prompt (迅速な) action is required by the immediate manager. A written report must be completed by the end of the particular work shift. No accident report should be delayed more than 24 hours. Without adequate accident data, the company may be subjected to costs, claims and even legal action.

An accident report must have at least the following information:

1. Name, occupation, and se of injured worker.
2. Place and date/time of accident.
3. Description of how the accident happened.
4. Immediate causes of the accident-unsafe acts and unsafe conditions.
5. Contributing causes--manager safety performance, level of worker training, inadequate job procedure, poor protective equipment.
6. Witness(es)---names of people who saw the accident
7. Corrective action taken; if any.

Comprehension

Task 1 Studying the Reports

Read the following reports and decide in which points it does not meet the above standards on reporting accidents.

	Given	Not Given
1. Name, occupation, and se of injured worker:	[ ]	[ ]
2. Place and date/time of accident:	[ ]	[ ]
3. Description of how the accident happened:	[ ]	[ ]

1. TO: NAME DEPARTMENT / LOCATION DATE
Manager Human Resourses July 13, 04
FROM: Jim Calloway Mech. Engineering Workshop
SUBJECT: While polishing a aluminium component on Tuesday last week, Robert Wang received an injury to his eye.

4. Immediate causes of the accident:	[ ]	[ ]
5. Contributing causes:	[ ]	[ ]
6. Witness(es):	[ ]	[ ]

2. TO: NAME DEPARTMENT / LOCATION DATE
Cab Calloway Electrical Engineering Workshop Mar. 10.2004
FROM: Gerry Mulligan Faculty
SUBJECT: Last week Art Farmer was repairing a casting on a gas heater in the faculty lounge. This was early March10th, around 9:00 a.m. As Art turned around to talk with us, the casting fell on him.

	Given	Not Given
7. Corrective action taken:	[ ]	[ ]
8. Name, occupation, and se of injured worker:	[ ]	[ ]
9. Place and date/time of accident:	[ ]	[ ]
10. Description of how the accident happened:	[ ]	[ ]
11. Immediate causes of the accident:	[ ]	[ ]
12. Contributing causes:	[ ]	[ ]

Assignment 3 - Metals

In pairs, read outloud the following information.

Role A Student 1

Hardness

Hardness refers to the ability of a metal to resist abrasion, penetration, cutting action, or permanent distortion. Hardness may be increased by working the metal and, in the case of steel and certain titanium and aluminum alloys, by heat treatment and cold-working (discussed later). Structural parts are often formed from metals in their soft state and then heat treated to harden them so that the finished shape will be retained. Hardness and strength are closely associated properties of all metals.

Brittleness

Brittleness is the property of a metal that allows little bending or deformation without shattering. In other words, a brittle metal is apt to break or crack without change of shape. Because structural metals are often subjected to shock loads, brittleness is not a very desirable property. Cast iron, cast aluminum, and very hard steel are brittle metals.

Malleability

A metal that can be hammered, rolled, or pressed into various shapes without cracking or breaking or other detrimental effects is said to be malleable. This property is necessary in sheet metal that is to be worked into curved shapes such as cowlings, fairings, and wing tips. Copper is one example of a malleable metal.

Ductility

Ductility is the property of a metal that permits it to be permanently drawn, bent, or twisted into various shapes without breaking. This property is essential for metals used in making wire and tubing. Ductile metals are greatly preferred for aircraft use because of their ease of forming and resistance to failure under shock loads. For this reason, aluminum alloys are used for fuselage and wing skin, and formed or extruded parts, such as ribs, spars, and bulkheads. Ductility is similar to malleability.

Weight

The relationship between the strength of a material and its weight per cubic inch, expressed as a ratio, is known as the strength/weight ratio. This ratio forms the basis of comparing the desirability of various materials for use in airframe construction and repair. Neither strength nor weight alone can be used as a means of true comparison. Thickness or bulk is necessary to prevent buckling or damage caused by careless handling. In short, weight is defined as the vertical force exerted by a mass as a result of gravity.

Role B Student 2

Elasticity

Elasticity is that property that enables a metal to return to its original shape when the force that causes the change of shape is removed. This property is extremely valuable, because it would be highly undesirable to have a part permanently distorted after an applied load was removed. Each metal has a point known as the elastic limit, beyond which it cannot be loaded without causing permanent distortion. When metal is loaded beyond its elastic limit and permanent distortion does result, it is referred to as strained. In aircraft construction, members and parts are so designed that the maximum loads to which they are subjected will never stress them beyond their elastic limit. Stress is the internal resistance of any metal to distortion.

Toughness

A material that possesses toughness will withstand tearing or shearing and may be stretched or otherwise deformed without breakin Toughness is a desirable property in aircraft metal This property relates to how long it can remain stron

Density

Density is the weight of a unit volume of a materia In aircraft work, the actual weight of a material per cubic inch is preferred, since this figure can be used in determining the weight of a part before actual manufactur Density is an important consideration when choosing a material to be used in the design of a part and still maintain the proper weight and balance of the aircraf

Fusibility

Fusibility is defined as the ability of a metal to become liquid by the application of hea Metals are fused in weldin Steels fuse at approximately 2,500 F, and aluminum alloys at approximately 1, 110

Conductivity

Conductivity is the property that enables a metal to carry heat or electricit The heat conductivity of a metal is especially important in welding, because it governs the amount of heat that will be required for proper fusio In aircraft, electrical conductivity must also be considered in conjunction with bonding, which is used to eliminate radio interferenc Metals vary in their capacity to conduct hea Copper, for instance, has a relatively high rate of heat conductivity and i a good electrical conducto

Strength

The material must possess the strength required by the demands of dimensions, weight, and us There are five basic stresses that metals may be required to withstan These are tension, compression, shear, bending, and torsio

Task

Write one sentence summary about each propert

1. Hardness
2. Brittleness
3. Malleability
4. Ductility
5. Weight
6. Elasticity
7. Toughness
8. Density
9. Fusibility
10. Conductivity
11. Strength

Assignment 4 - Lasers

Reading 1: Kind of Lasers

There are many different types of lasers.

* Solid-state lasers have lasing material distributed in a solid matrix (such as the ruby or neodymium:yttrium-aluminum garnet "Yag" lasers). The neodymium-Yag laser emits infrared light.
* Gas lasers (helium and helium-neon, HeNe, are the most common gas lasers) have a primary output of visible red light.
* CO2 lasers emit energy in the far infrared and are used for cutting hard materials such as steel. It emits laser light in the infrared and microwave region of the spectrum. Infrared radiation is heat, and this laser basically melts through whatever it is focused upon.
* Excimer lasers use reactive gases, such as chlorine and fluorine, mixed with inert gases such as argon, krypton or xenon. When electrically stimulated, a pseudo molecule (dimer) is produced that, in turn, produces ultraviolet light.
* Dye lasers use complex organic dyes, such as rhodamine 6G, in liquid solution or suspension as lasing media. They use a variety of wavelengths.
* Semiconductor lasers, sometimes called diode lasers, are not solid-state lasers. These electronic devices are generally very small and use low power.
* A ruby laser is a solid-state laser and emits at a wavelength of 694 nm.

Here are some typical lasers and their emission wavelengths:

Laser Type	Wavelength (nm)
Argon fluoride (UV)	193
Krypton fluoride (UV)	248
Nitrogen (UV)	337
Argon (blue)	488
Argon (green)	514
Helium neon (green)	543
Helium neon (red)	633
Rhodamine 6G dye (tunable)	570-650
Ruby ($CrAlO_3$) (red)	694
Nd:Yag (NIR)	1064
Carbon dioxide (FIR)	10600

Reading 2: Laser Classifications

Class I - cannot emit laser radiation at known levels.

Class I.A - a special designation for lasers not intended for viewing, such as a supermarket laser. Upper power limit: 4.0 mW.

Class II - low power visible lasers that emit above Classs I levels but a radiant power not above 1 mW.

Class IIIA - intermediate power lasers (cw: 1-5MW) which are hazardous only for intrabeam viewing. Most pen-like pointing lasers are in this class.

Class IIIB - moderate power lasers

Class IV - high power laswers (cw: 500 mW, pulsed 10J/cm2) are hazardous to view under any conditions, and are a potential. fire hazard. Significant controls are needed.

Class Survey in English

A ☐ Yes, I agree a lot
B ☐ Yes, I agree a little
C ☐ I don't know
D ☐ I disagree a little
E ☐ I disagree a lot

Part 1

1. The teacher checks your homework and helps you with your mistakes or errors. [ ]
   Classroom tasks, exams and assignments are given back to you quickly.

3. The teacher informs you about your progress and grades. [ ]

Part 2

4. The teacher gives you advice on how to improve. [ ]
5. Class begins and ends on time [ ]
6. The teacher uses the textbook well. [ ]
7. You can say that the teacher is eager and interested in teaching. [ ]

Part 3

8. The teacher has realistic examples that youeasily understand. [ ]
9. Classroom activities and topics are interesting. [ ]
10. The teacher provides different kinds of lessons and material so that you are not bored. [ ]
11. The teacher gives clear instructions. [ ]
12. You are told by the teacher what to do for each lesson. [ ]

Part 4

13. The teacher is approachable and friendly. [ ]
14. The teacher moves around the class to help students. [ ]
15. The teacher tries hard to create a pleasant atmosphere. [ ]
16. Corrected homework and tests are returned promptly. [ ]
17. The teacher praises students. [ ]
18. The teacher encourages students to participate. [ ]

Part 5

19. You have spent time and energy in really trying to learn English. [ ]
20. Are you more confident about using English? [ ]
21. You are satisfied with how you have improved in your English abilities. [ ]
22. Do you enjoy going to this class? [ ]
23. You are happy and involved with your class. [ ]
24. Do you learn a lot in class? [ ]

Class Survey

回答方法：英語の授業について、下記の項目をどう感じているか答えて下さい。各質問事 項について非常に満足している場合は、最初のボックスにマークして下さい。やや満足している場合は 2 番目のボックスにマークして下さい。わからない場合や特に意見がない場合は 3 番目のボックスにマークして下さい。やや不満の場合は 4 番目のボックスに、非常に不満の場合は 5 番目のボックスにマークして下さい。全ての回答を正しくマークして下さい。

例：授業時間は無駄なく使われている

A □ はい（非常にそう感じる）
B □ はい（ややそう感じる）
C □ わからない
D □ そうではない
E □ 全くそうではない

Part 1

1. 先生が宿題をチェックし、誤りを訂正してくれる。 [ ]
2. 授業中の課題、試験、宿題は迅速に返却される。 [ ]
3. 先生は達制度や成績を教えてくれる。 [ ]

Part 2

4. 先生がどのように上達できるかアドバイスを与えてくれる。 [ ]
5. 授業の始業、終業時間が守られている。 [ ]
6. 教科書をうまく利用してくれる. [ ]
7. 先生は、教えることに熱意と興味を持って取り組んでいると言える。 [ ]

Part 3

8. 先生は、現実に即した、分かりやすい例文（or 例）を用いる（or 用います）。 [ ]
9. クラス活動や話題がおもしろい。 [ ]
10. 先生は、あなたが飽きないように、いろいろな種類のレッスンや題材を提供する。 [ ]
11. 先生の指導はわかりやすい。 [ ]
12. 先生がそれぞれの課で何をすべきか指導している。 [ ]

Part 4

13. 先生はフレンドリーですか。 [ ]
14. 先生は教室内を動いて、生徒個人と共に授業をすすめる。 [ ]
15. 楽しい雰囲気を作るために、先生は熱心に努力する。 [ ]
16. あなたが困っているとき、先生は喜んで指示を与え指導をする。 [ ]
17. 先生はよく学生を誉める。 [ ]
18. 先生は、生徒の参加を奨励する。 [ ]

Part 5

19. 英語を本当に学ぶために時間と労力を使いましたか。 [ ]
20. 英語を使うことについて、以前よりも自信を持っていますか。 [ ]
21. 自分の英語能力の進歩に満足していますか。 [ ]
22. このクラスが楽しみですか。 [ ]
23. このクラスに、楽しく一生懸命に参加することができますか？ [ ]
24. クラスで多くのことを学びますか。 [ ]