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CHAPTER I. GRAMMAR PRACTICE

PART 1. Grammar Rules in Tables
Глагол (The Verb)
Действительный залог (The Active Voice)

Таблица 1. Сводная таблица употребления настоящих времен

Present Simple (Indefinite) Настоящее простое (неопределенное)	**Present Continuous (Progressive) Настоящее длительное**	**Present Perfect Настоящее совершенное**	**Present Perfect Continuous (Progressive) Настоящее совер-шенно-длительное**
1	**2**	**3**	**4**
Постоянные ситуации или состояния. She works as a nurse. She owns a large shop.	**Временные ситуации.** They're staying at the Park Hotel at present.	**Недавно закончившиеся действия.** She has tidied her room. (Она закончила уборку комнаты. Вы можете видеть, что комната сейчас убрана. – Результат в настоящем)	**Действия, начавшиеся в прошлом и продолжающиеся до настоящего момента.** He's been writing a letter for two hours. (Он начал писать два часа назад и все еще пишет.)
Повторяющиеся/ привычные действия (особенно с наречиями частотности: often, usually и др.) I usually get up at 7.30.	**Действия, происходящие в момент речи или в настоящий период времени** She is looking for a better job.	**Закончившиеся прошлые действия, связанные с настоящим, с указанной или не указанной ссылкой на время.** I've met Madonna. (Я могу встретиться с ней опять, так как она еще жива – не закончившийся период времени) He has just bought a car.	**Прошлые действия определенной продолжитель-ности, имеющие видимые результаты или последствия в настоящем.** She's been crying (Ее глаза красные).
Общеизвестные факты или законы природы. Money doesn't buy happiness. Water freezes at 0 °C.	**Часто повторяющиеся действия с always, constantly, continually для выражения раздражения или критики.** She's always interrupting me!	**Личный опыт/перемены, которые произошли**. I've lost 10 kilos.	**Для выражения гнева, раздражения, возмущения или критики.** Who has been using my tooth brush?

Продолжение табл. 1

1	2	3	4
	(На самом деле она не всегда прерывает говорящего, просто с его точки зрения она делает это слишком часто.)		
Расписания/ программы (будущее значение). The match finishes at 7.45 The plane leaves at 6.05	**Заведомо спланированные и уже организованные действия в ближайшем будущем.** The Browns are visiting us tonight. (Мы их уже пригласили, они обещали прийти). **Время действия должно быть указано или ясно из контекста.**	**Для подчеркивания количества**. She has called on <u>two</u> clients since 12 o'clock.	**Для подчеркивания продолжительности** She has been calling on clients since this morning.
Обзоры/ спортивные комментарии и т.д. Jane Fonda acts brilliantly in this film.	**Изменяющиеся или развивающиеся ситуации** His English is getting better.	**<u>Примечание.</u> live, feel and work употребляются как в Present Perfect, так и в Present Perfect Continuous без разницы в значении.** I've been living/I've lived in Rome for a year**.**	
Действия, совершающиеся в момент речи (вместо Present Continuous) с глаголами, которые обычно не употребляются во временах группы Continuous (to see, to hear и т.д.) Don't talk too loudly, I hear you well.		**Употребляется вместо Present Perfect Continuous с глаголами, обычно не употребляющимися во временах группы Continuous.** I have known him for three years.	
В обстоятельственных придаточных предложениях условия и времени, которые вводятся союзами if если, unless если … не, provided that при условии если, when когда, until, till до тех пор, пока не, as soon as как только, as long as пока, before прежде чем и т.д. для описания будущих действий:			

Окончание табл. 1

1	2	3	4
Вместо Future Simple We will send the documents as soon as we receive them from Moscow. Мы пришлем документы как только мы получим их из Москвы.	**Вместо Future Continuous** I'll be reading the newspaper while you are writing your grammar exercises. Я буду читать газету, в то время как вы будете писать грамматические упражнения.	**Вместо Future Perfect** I'll go to the country as soon as I have passed my examinations. Я поеду в деревню, как только сдам свои экзамены.	**Вместо Future Perfect Continuous** If he has been working for seven hours, he will be very tired. Если он проработает семь часов, он будет очень уставшим.
Обстоятельства времени, обычно используемые с настоящими временами.			
every day/ week/ month/ year, usually, sometimes, always, rarely, never, often, in the morning/ evening/ afternoon, at night, on Mondays и т.д.	Now, at the moment, at present, nowadays, today, tonight, always, still и т.д.	just, ever, never, already, yet (отрицательные и вопросительные предложения), always, how long, so far, recently, since (с какого-то момента в прошлом), for (в течение какого-то периода времени) today, this week/ month и т.д. For и since обычно используются с Present Perfect Continuous, чтобы подчеркнуть длительность действия.	

Глаголы, описывающие постоянные состояния (state verbs), как правило, не употребляются во временах группы Continuous. Это:
1) глаголы восприятия: see, hear, smell, feel, taste и т.д. (Мы часто используем can или could с этими глаголами) Can you see that tall boy over there?
2) глаголы выражения мнения: agree, believe, consider и т.д.
3) глаголы, выражающие чувства, эмоции: feel, forgive, hate, like, love и т.д.
4) другие глаголы: appear (=seem), be, belong, fit (=be the right shape and size for sth), have (=possess), know, look (=appear), need, prefer, require, want, weigh, wish и т.д.

Некоторые глаголы состояния (see, smell, taste, feel, think, have и т.д.) могут употребляться во временах группы Continuous, но есть разница в значении, например:

СОСТОЯНИЕ	**ДЕЙСТВИЕ**
I think she's rich. (=I believe) The milk tastes awful. (=it has a bad flavour) He has a pet dog. (=he owns) This cloth feels like velvet. (=has the texture) I see you're in trouble. (= I understand)	I'm thinking about your plan. (=I'm considering) He's tasting the sauce; it might need some salt. (=he's trying its flavour) He's having dinner now. (=he's eating) She's feeling her way in the dark. (=she's finding her way) I'm seeing my lawyer tonight.) (=I'm visiting)

Таблица 2. Сводная таблица употребления прошедших времен

Past Simple (Indefinite) Прошедшее простое (неопределенное)	**Past Continuous (Progressive) Прошедшее длительное**	**Past Perfect Прошедшее совершенное**	**Past Perfect Continuous (Progressive) Прошедшее совершенно-длительное**
1	**2**	**3**	**4**
Действия в прошлом, которые происходили одно за другим. She sealed the letter, put a stamp on it and posted it.	**Действие, которое находилось в процессе развития в определенный момент в прошлом.** He was playing tennis at 4.30 yesterday.	**Прошлое действие, которое предшествовало другому прошлому действию или произошло к определенному моменту в прошлом.** He had left by the time I got there (или by 8.15).	**Действие, которое длилось в течение периода времени вплоть до определенного момента в прошлом.** She had been working as a clerk for 10 years before she resigned.
Прошлая привычка или состояние He used to go / went to school on foot. **Законченное действие или событие, которое произошло в установленное время в прошлом.** She called an hour ago.	**Прошлое действие в процессе развития, которое прерывается другим прошлым действием. Более длительное действие употребляется в Past Continuous, более короткое – в Past Simple.** While I was getting dressed the bell rang.	**Законченные прошлые действия, которые имели очевидные результаты в прошлом.** She was sad because she had failed the test.	**Прошлое действие определенной длительности, которое имело очевидные результаты в прошлом.** They were wet because they had been walking in the rain.
Закончившееся прошлое действие, не связанное с настоящим. Время действия указывается или подразумевается. Elvis Presley made lots of records (Элвис умер, он больше ничего не запишет).	**Два или более одновременных прошлых действия определенной длительности** While I was sunbathing, Tim was swimming. **Или описание обстановки, на фоне которой развивались события в рассказе** She was flying to Paris. The sun was shining…	**Прошедшее совершенное является эквивалентом настоящего совершенного** (He can't find his watch. He has lost it.) He couldn't find his watch. He had lost it.	**Прошедшее совершенно-длительное является эквивалентом настоящего совершенно-длительного** (She is going to the doctor. Her leg has been aching for two days.) She went to the doctor. Her leg had been aching for two days.

Окончание табл. 2

1	2	3	4
Обстоятельства времени, обычно употребляемые с прошедшими временами.			
Yesterday, last week и т.д., (how long) ago, then, just now, when, in 1992 и т.д.	While, when, as, the moment that и т.д.	for, since, already, after, just, never, yet, before, by, by the time и т.д.	for, since

Таблица 3. Сводная таблица употребления будущих времен

Future Simple (Indefinite) Будущее простое (неопределенное)	**Future Continuous (Progressive) Будущее длительное**	**Future Perfect Будущее совершенное**	**Future Perfect Continuous (Progressive) Будущее совершенно-длительное**
1	**2**	**3**	**4**
Решения, которые принимаются в момент речи («на месте») Since it's getting dark, I'll turn on the light.	**Действия в процессе развития в указанный момент в будущем** He'll be sunbathing in Hawaii this time next week.	**Действия, которые завершаются до указанного момента в будущем** She will have come back by the end of July. **Примечание: by или not … until / till употребляются в Future Perfect. Until / till, как правило, употребляется в Future Perfect только в отрицательных предложениях.** She will have finished by 8 o'clock. She won't have finished until 8 o'clock.	**Действие, которое будет длиться вплоть до определенного момента в будущем.** By the end of this year she will have been working here for two years.

Продолжение табл. 3

1	2	3	4
Надежды, опасения, угрозы, предложения, обещания, предупреждения, просьбы, комментарий etc., особенно с: expect, hope, believe, I'm sure, I'm afraid, probably etc. I'm afraid I'll be a little late.	**Действия, как результат заведенного порядка (вместо Present Cont.)** I'll be seeing John tomorrow. (Мы работаем в одном и том же учреждении, поэтому мы обязательно встретимся.)		
Действия или предсказания, которые могут произойти в будущем. She'll probably buy the dress. **(предсказание) или действия, которые невозможно контролировать и неизбежно должны случиться.** He will be ten next year.	**Когда мы вежливо интересуемся, что люди собираются делать для того, чтобы узнать, смогут ли они сделать что-либо для нас или предложить сделать что-либо для них.** Will you be going to the supermarket? Can you buy me some tea?		
Вещи, в которых мы сомневаемся или еще не решили, делать ли. She'll probably be promoted (еще не уверены).			
Shall используется с местоимениями I/We в вопросах, предложениях, или когда спрашивают совета. Shall we go for a walk? Who shall I invite?		**Will используется для выражения предложений, угроз, обещаний, предсказаний, предупреждений, просьб, надежд, надежд, страхов, на месте принятых решений (обычно с think, expect, believe.** I'm sure John will pass his driving test.	
Употребление конструкции to be going to для описания будущих действий			

Окончание табл. 3

1	2	3	4
Действия, которые намереваются выполнить в близком будущем. She's going to visit her parents tomorrow.	**Запланированные действия или намерения.** Now that they've settled in their new house, they're going to have a party.	**Очевидность, что что-то определенно должно произойти в близком будущем** Ann is going to have a baby. Look at the dark, clouds in the sky! It's going to rain.	**Вещи, в которых мы уверены или уже решили сделать в близком будущем.** He's going to be promoted (Начальник уже решил это сделать).
Обстоятельства времени, обычно употребляющиеся с будущими временами и конструкцией to be going to			
Tomorrow, tonight, next week/month/year, in two/three etc. days и т.д., the day after tomorrow, soon, in a week/month и т.д.		before, by, by then, by the time, until (используется только в отрицательных предложениях)	By … for

Страдательный залог (The Passive Voice)

Страдательный залог употребляется тогда, когда подлежащее обозначает лицо или предмет, которое не само выполняет действие, а подвергается действию со стороны другого лица или предмета.

The planets are attracted by the sun. Планеты притягиваются солнцем.

Страдательный залог образуется с помощью глагола to be в соответствующем времени и причастия прошедшего времени (3-я форма глагола).

He invited me to the concert. I was invited to the concert (by him).

Страдательный залог употребляется:

1. Когда лицо, которое выполняет действие, неизвестно, этому не придается значения или это понятно из контекста. My car was stolen yesterday (лицо известно). The road repairs were completed last week (значения не придается). The kidnappers have been arrested (by the police – очевидный исполнитель).	**3. Когда действие более важно, чем исполнитель, как, например, в сообщениях новостей, официальных объявлениях, инструктажах, заголовках, рекламных объявлениях и др.** Taking pictures is not allowed (письменное объявление). The local bank was robbed this morning. (новости) Bred is baked in an oven for about 45 minutes (процесс).
2. Чтобы сделать утверждения более вежливыми или официальными. My new suit has been burnt (Это звучит более вежливо, чем You've burnt my new suit).	**4. Подчеркивается исполнитель действия.** The Tower of London was build by William the Conqueror.

PART 2. Grammar Exercises

Задание 1. Сопоставьте предложения, в которых употребляются настоящие времена действительного залога (Present Tenses Active Voice), с нижеприведенными объяснениями языковых ситуаций.

1. He drinks a litre of milk every day.
2. Milk contains a lot of vitamins.
3. He is getting stronger.
4. She has just passed her exams.
5. She is having a party at the moment.
6. He has been working all day.
7. She has phoned him three times this morning.
8. He is always borrowing money from me.
9. She has been walking all morning. (Her feet are aching.)
10. They are getting married next week. (They've already sent the invitations.)

a) подчеркивается продолжительность действия
b) временная ситуация
c) выражение раздражения по поводу часто повторяющегося действия
d) подчеркивается количество
e) привычное действие
f) недавно закончившееся действие
g) общеизвестный факт
h) изменяющаяся или развивающаяся ситуация
i) твердо спланированное и уже организованное действие в ближайшем будущем
j) прошлое действие определенной продолжительности, имеющее видимые результаты или последствия в настоящем.

Задание 2. Сопоставьте предложения, в которых употребляются настоящие времена действительного залога (Present Tenses Active Voice), с нижеприведенными объяснениями языковых ситуаций.

1. Pele passes to Geraldinjo … and Santos scores!
2. Who's been drinking my orange juice?
3. Light travels faster than sound.
4. He's been watching TV since 6 o'clock.
5. Spencer opens the door and sees the murderer.
6. He lives in Tokyo.
7. I've learnt a lot in this class.
8. The film starts at 11 o'clock.
9. My mother is cooking dinner.
10. Michael Jackson has made a lot of records.

a) действие, начавшееся в прошлом и продолжающееся до настоящего момента

b) постоянная ситуация
c) прошлое действие, произошедшее в неуказанное время, связанное с настоящим.
d) спортивный комментарий
e) личный опыт или изменения, которые произошли
f) действие, происходящее в настоящий момент или в настоящий период времени.
g) расписание, программа
h) действие, вызывающее раздражение
i) драматическое повествование
j) закон природы.

Задание 3. Выберите правильную форму глагола из двух предложенных.

1. I … that the situation is out of control
   A. see B. am seeing
2. The sausages … delicious.
   A. are tasting B. taste
3. … this party?
   A. Do you enjoy B. Are you enjoying
4. You haven't said a word all morning. What … about?
   A. are you thinking B. do you think
5. He … a Siamese cat.
   A. has B. is having
6. These flowers … nice.
   A. are smelling B. smell
7. I … where she keeps the keys.
   A. don't know B. am not knowing
8. Why … your pockets? Have you lost anything?
   A. are you feeling B. do you feel
9. Why … the milk? Do you think it has gone off?
   A. do you smell B. are you smelling
10. Anna is Italian. She … from Italy.
   A. is coming B. comes
11. That dress … nice on you.
   A. looks B. is looking
12. Paul … to a new record in his room.
   A. listens B. is listening
13. If you … at that comic book, I'd like to see it.
   A. don't look B. aren't looking
14. Joan … 50 kilos.
   A. weighs B. is weighing
15. Mary … very naughty these days
   A. is B. is being

Задание 4. Сопоставьте предложения, в которых употребляются прошедшие времена действительного залога (Past Tenses Active Voice), с нижеприведенными объяснениями языковых ситуаций.

1. It was raining and the wind was blowing.
2. He was exhausted because he had been walking all day.
3. There was no juice left because Jack had drunk it all.
4. She had finished by 8 o'clock.
5. The storm broke out after we had been driving for four hours.
6. He got into the plane, started the engine and flew off into the clouds.
7. The party had already started by the time I arrived.
8. Elvis Presley died in 1977.
9. I was cycling to work when I fell off the bike.
10. My grandfather met Winston Churchill.
11. I was sleeping at 3 o'clock yesterday afternoon.
12. She had been trying to find a job in Hollywood for years.
13. When she was young, she danced a lot.
14. Ted was reading a book while Mary was sleeping.
15. She was upset because she had lost her watch.

a) прошлый эквивалент Present Perfect
b) действие, которое находилось в процессе развития в определенный момент времени в прошлом
c) действия в прошлом, которые происходили одно за другим
d) действие, не связанное с настоящим и произошедшее в определенный момент времени в прошлом, хотя сам момент не упомянут
e) описание обстановки, на фоне которой развивались события в рассказе
f) действие, которое длилось в течение периода времени вплоть до определенного момента в прошлом
g) прошлый эквивалент Present Perfect Continuous
h) прошлое действие, которое предшествовало другому прошлому действию
i) прошлое действие в процессе развития, которое прерывается другим прошлым действием
j) прошлое действие, которое произошло к определенному моменту в прошлом
k) событие, которое произошло в установленное время в прошлом
l) прошлое действие определенной длительности, которое имело видимые результаты в прошлом
m) закончившееся прошлое действие, которое имело видимые результаты в прошлом
n) прошлые привычки
o) одновременные прошлые действия.

Задание 5. Сопоставьте предложения, в которых употребляются будущие времена действительного залога (Future Tenses Active Voice), настоящие времена действительного залога (Present Tenses Active Voice) и конструкция to be going to, с нижеприведенными объяснениями языковых ситуаций.

1. Look out! That dog is going to bite you.
2. I'll be flying to Morocco this time tomorrow.
3. She is worried that he'll be angry.
4. By 11 o'clock she'll have been waiting for five hours.
5. The London train arrives at 4.45
6. I'm seeing my bank manager this morning.
7. When I'm older, I'm going to learn to drive.
8. I think I'll make some tea. Do you want some?
9. He'll have finished by tomorrow afternoon.
10. Will you be going into town today?
11. I'm sure he'll pass the test.
12. She'll probably come early.
13. I'm going to buy a new car tomorrow.
14. Shall I post this letter for you?
15. Don't pull cat's tail. It will scratch you.

a) спланированное и организованное действие в ближайшем будущем
b) действие, которое будет закончено к определенному моменту в будущем
c) расписание
d) опасения по поводу будущего
e) свидетельство того, что что-то наверняка случится в ближайшем будущем
f) будущее намерение
g) действие в процессе развития в указанный момент времени в будущем
h) действие, которое будет длиться до определенного момента времени в будущем
i) запланированное действие или намерение в ближайшем будущем
j) на месте принятое решение
k) что-то, в чем мы еще не уверены
l) вежливое выяснение планов людей
m) предсказание
n) предупреждение
o) предложение.

Задание 6. Выберите правильную форму глагола из двух предложенных.

1. She'll call us as soon as she … London.
   A. will reach B. reaches
2. I don't know when he … .
   A. will leave B. leaves
3. What will you do if you … an accident?
   A. will have B. have
4. Turn the lights off before you … to bed.
   A. will go B. go
5. Don't go out until it … raining.
   A. will stop B. stops
6. I will write to you as soon as I … .
   A. will be able to B. can
7. He will be angry if you … home late.

A. will come B. come

8. If I … you $5, what will you buy?

A. will give B. give

Задание 7. Сопоставьте предложения, в которых употребляются времена страдательного залога (Passive Voice), с нижеприведенными объяснениями языковых ситуаций.

1. Animals shouldn't be fed.
2. Hamlet was written by Shakespeare.
3. She's just been told the bad news.
4. Dinner is being served.
5. The building has been destroyed by fire.
6. Juice is made from oranges.
7. A bomb was placed in the station yesterday.
8. The jewellery is being stolen.

a) процесс приготовления
b) газетная статья
c) исполнитель действия не важен
d) действие более важное, чем исполнитель
e) подчеркивается исполнитель действия
f) вежливое указание
g) исполнитель действия понятен из контекста
h) телевизионные новости.

Keys

Задание 1. 1. e; 2. g; 3. h; 4. f; 5. b; 6. a; 7. d; 8. c; 9. j; 10. l.
Задание 2. 1. d; 2. h; 3. j; 4. a; 5. i; 6. d; 7. e; 8. g; 9. f; 10. c.
Задание 3. 1. A; 2. B; 3. B; 4. A; 5. A; 6. B; 7. A; 8. A; 9. B; 10. B; 11. A; 12. B; 13. B; 14. A; 15. B.
Задание 4. 1. e; 2. l; 3. a; 4. j; 5. f; 6. c; 7. h; 8. k; 9. i; 10. d; 11. b; 12. g; 13. n; 14.o; 15. m.
Задание 5. 1. e; 2. g; 3. d; 4. h; 5. c; 6. a; 7. f; 8. j; 9. d; 10. l; 11. m; 12. k; 13. i; 14. o; 15. n.
Задание 6. 1. B; 2. A; 3. B; 4. B; 5. B; 6. B; 7. B; 8. B.
Задание 7. 1. f; 2. e; 3. d; 4. c/d; 5. b/h; 6. a; 7. h/b; 8. g/d.

CHAPTER II. READING PRACTICE

PART 1. *FOR SECOND YEAR THE STUDENTS* OF THE COMPUTER AIDED DESIGN AND RADIO ENGINEERING FACULTIES

UNIT I

1. Read the text, entitle and summarize it.

As more ways are found to jam circuits onto silicon chips, a new barrier to smaller and faster computers is emerging. The plastic or ceramic package that carries electrical signals on wires in and out of the chip is still bulky – sometimes 20 times as big as the chip.

One solution, promoted by National Semiconductor Cooperation and others, is tape automated bonding. Instead of the wires and prongs (штырь) now used to connect, chips, connections are etched into copper foil. These connections are five times closer together than the prongs are. IBM has tried abandoning chip packages altogether, connecting the chips directly to a surface containing multiple levels of wiring.

2. In the 1970's some forecasts about the development of electronics in 1980-1990's were made, read them and agree or disagree with them. Use the following expressions.

–As far as I know…
– To my knowledge…
– For all I know…
– Intensive efforts have been devoted to…
– The efforts continue in the direction of…
– It appears that the (process) will…
– To sum up…

1. Further developments in thick and thin film circuits will extend the range of values achievable using deposition and evaporation techniques, although some applications may still require «pellet» type components. 2. Hybrid microwave devices will decrease in importance as true microwave integrated circuits become more economical. 3. The use of an electron beam instead of a light beam in the photographic process will result in integrated circuits with vastly increased numbers of functions per chip. 4. Materials other than silicon will be used, and other phenomena and structures besides junction barriers formed by *p* and *n* impurities can be considered.

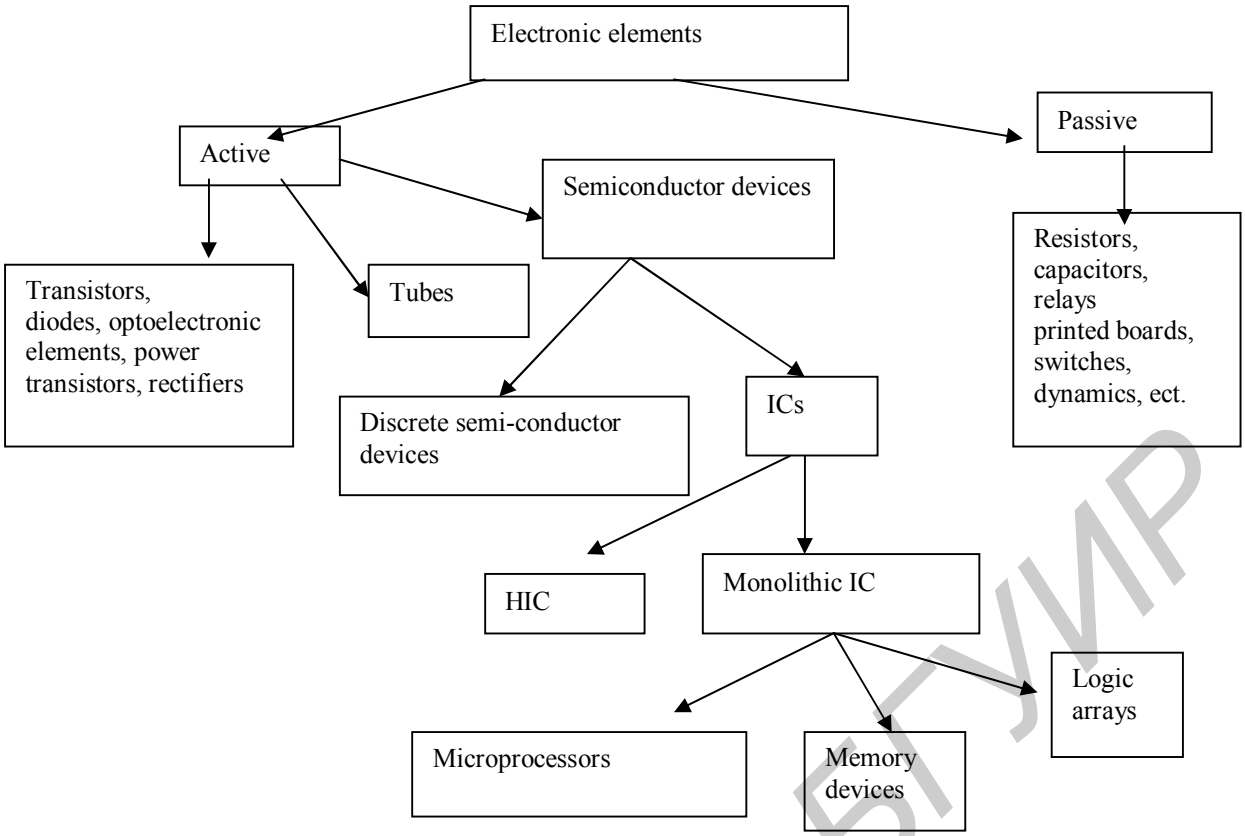
3. Translate these terms and memorize them.

Chip: array chip; face-down chip; base chip; bipolar chip; component chip; gate array chip; dense chip; fast chip; master chip; math chip, chip-carrier

Gate: discrete gate; insulated gate; intrinsic gate; transistor gate; two-input gate; diode-transistor-logic gate

Junction: back-to-back junction, blocking junction, intrinsic-extrinsic junction; isolation junction

4. *a) Define types of ICs, b) Discuss problems of using semiconductors, c) Discuss the advantages of microelectronics, d) Using the following structural logical scheme, speak about electronic components.*



UNIT II

1. Read the text and speak about the facts influencing resistor performance. You may understand the meaning of the italicized words from the context.

Photoresists

Photoresists are high-sensitive materials used to generate etched patterns in substrates. The quality of the etched *images* depends upon the success of every step in the process, and the image *flaws* may be due to resist or non-resist imperfections, or to conditions which underline resist performance. Some fundamental factors influencing resist performance include *adherence* coating thickness, heat treatment, and resist response to various energy sources. Let us start with adherence.

A strong bond between photoresist and substrate is essential to minimize dimensional changes during development and undercutting or loss of adherence during etching. The *intimate* contact between resist and substrate required for strong adhesion can be inhibited by surface impurities or resist components. Zones of weakness can be created by surface *contaminants* such as dust, oil, absorbed gases (particularly absorbed water), dopant ions, or monolayers of previous resist coatings. Removal of obvious visible impurities such as *grease*, fingerprints, or dust can give an apparently clean surface, but contamination is often insidious (опасный) because it is invisible. Weakly adsorbed layers of tobacco smoke, water vapor, vacuum pump vapors, or nonstripped resist components may be present, even though difficult to detect. Condensing one's breath on the surface or placing the wafers on a cold plate can sometimes reveal an adsorbed pattern on unetched wafers after resist stripping.

2. Read the text and make an English annotation of it. Use the following phrases.

1. … deals with; 2. … is largely as a result of; 3. … is discussed;
4. …offers properties; 5. to sum up…

Ceramic-to-Metal Seals

Ceramic-to-metal seals are a natural extension of the state-of-the-art where adverse temperature, shock and vibration conditions prevail. Alumina ceramics are widely used for high-performance electronic applications because of their excellent properties and moderate costs. Beryllia ceramic-to-metal seals are available but generally limited to where high heat transfer is needed.

The alumina family offers a combination of desirable properties for ceramic-to-metal seals:

Electrical – high resistance, low losses, and high dielectric strength.

Mechanical – high compressive, tensile, and flexible strength, high impact strength and high hardness.

Thermal – intermediate thermal expansion coefficient that enables sealing to many metals and matching components, good thermal conductivity, good thermal shock resistance, and good high temperature properties.

Chemical – extremely stable and surface capable of withstanding harsh chemicals and cleaning procedures.

3. Read the text. Sum up general requirements for materials.

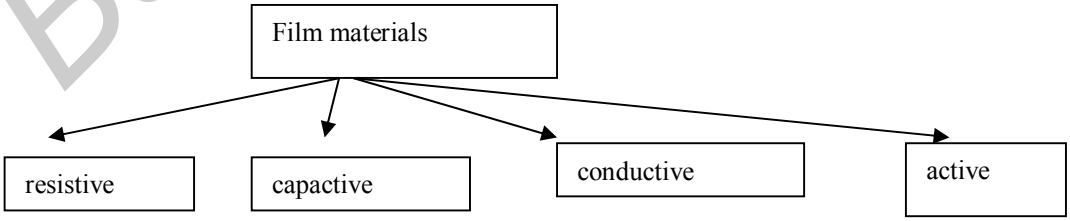
Materials Requirements

The following are the general requirements for a material for interconnects and contacts: high electrical conductance, low ohmic contact resistance, electromigration, stable contacts (with silicon and final metallization), corrosion and oxidation resistance, high temperature stability, strong adhesion characteristics.

One of the primary considerations is to obtain a material with high electrical conductivity and low ohmic contact resistance. It should also have good electromigration resistance and be stable when in contact with silicon and/or oxide and the final metallization.

These parameters must be maintained throughout the high temperatures encountered during processing; i.e., to maintain their metallurgical integrity. This requires that the melting point of the materials should be much higher than conventional process temperatures.

4. Using the scheme, classify film materials.



Titanium	Silicon oxides	Aluminium	Silicon
Rhenium	Silicon nitrides	Gold	Cadmium sulphide
Molybdenum	Aluminium oxide	Silver	CdTe
Tantalum	Barium titanite	Tin	Organic
		Copper	Semiconductors

5. Compare some materials you know with different physical, electrical and optical properties which are currently used in microelectronics.

UNIT III

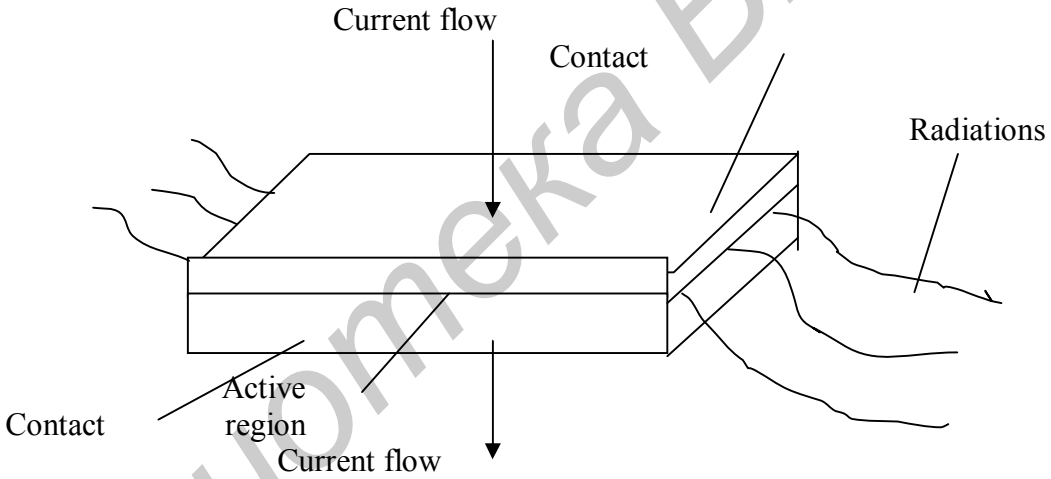
1. Read the text. Draw a conclusion about the advantages of GaAs *devices. Describe the principle of the device operation shown in figure.*

III–V Semiconductor Integrated Circuits

III–V semiconductors attract the attention of scientists and manufactures working in the field of microelectronics. This interest is based upon the ability of these materials to satisfy a wide variety of needs.

Technological applications include high speed processing, communications, sensing and imagining, and many others. Integrated circuits with various combinations of MESFET, JFET, bipolar, Gunn, Schottky diode, laser diode, optical detector, light guide, acoustic wave, and other assorted functions are being explored, developed and utilized.

One of the first large-scale applications of III–V semiconductors was light-emitting diodes (LEDs) which are two terminal devices that emit light when a forward-bias current is passed through a p-n junction. An energy state and device construction is given in figure.



When an electron in the conduction band combines with a hole in the valence band, the energy is emitted as photon and light is produced. Of course, non-radiative processes and light re-absorption must be minimized for high efficiency. To emit light visible to the human eye, a band gap near 2 eV is necessary to provide the proper photon energy, which precludes use of the semiconductors except GaP, which produces red-green light.

At the beginning of the 1970's, the GaAs MESFET device was developed for use in circuits such as microwave amplifiers operating in the frequencies range from about 2 to 12 GHz. The device is fabricated on a base of single-crystal semi-insulating GaAs. A GaAs film containing a closely-controlled concentration of n-type dopant atoms is epitaxially deposited on the GaAs wafer. The devices are completed by etching «mesas» or islands to electrically isolate the device and by adding low resistance contacts and a gate electrode. The gate length is typically 1 μm.

The first integration of GaAs MESFET transistors into logic gates was done in 1974. These gate have been integrated into gated flip-flop integrated circuits and used for prescalers and time-interval measurements. These GaAs integrated circuits operate at substantially higher speeds than silicon ICs because of a combination of higher transconductance due to higher electron mobility, and lower parasitic capacitance due to higher substrate resistivity. The higher substrate resistivity in GaAs is a result of its larger band gap. Semi-insulating GaAs material naturally provides device-to-device electrical isolation.

Digital capability in GaAs has passed from the SSI (small-scale integration, ~ 10 gates) realm into the MSI (medium-scale integration, ~ 100 gates), and is headed for LSI (large-scale integration, ~ 1000 gates). Fabrication of an 8x8 bit parallel multiplier (1008 gates fabricated from approximately 6000 transistors and diodes) has been recently reported, which is the most complex GaAs integrated circuit reported to date.

GaAs IC technology is being developed to meet important system needs. Advanced systems are faced with challenges which require significant advances in the rate of real-time signal. An attractive objective is to convert analog microwave signals to digital format in a high-speed A/D converter as close as possible to the microwave receiver front, and them to process the data digitally. The bandwidth, which can be achieved in GaAs, should be capable of permitting digital processing of microwave signals including A/D conversion to become a reality.

2. *Using your knowledge of microelectronics, make the following written reports:*
   a) Technologies of semiconductor devices and ICs,
   b) New materials and new technologies in IC, LSI, VLSI manufacture.

3. Translate the following Russian terms into English.

Механическая обработка, эпитаксия, фотолитография, химическая обработка, термическая обработка, сборка, контроль, резка, шлифовка, полировка, наращивание эпитаксиального слоя, контроль толщины, удельного сопротивления, дефектов, первое окисление, фотолитография базы, диффузия бора, фотолитография эмиттера, диффузия фосфора, фотолитография контактных окон, напыление алюминия, фотолитография контактов, вжигание алюминия, напыление золота, контроль размеров элементов, толщины диффузионных слоев, поверхностного сопротивления, дефектов, измерение электрических характеристик структур на пластине, скрайбирование, монтаж кристаллов, разводка выводов, герметизация, измерения, испытания.

UNIT IV

1. *Read the text and make a one-page written report on the theme «Some facts from the history of computers».*
2.

The Development of Computers

Modern computers come in an enormous variety of sizes and shapes, ranging from the smallest personal computers to huge machines filling warehouse-sized rooms. Nearly one hundred fifty years ago there were no such things as computers – at least in the sense we are using the term now. There have been calculating aids for millennia. Knotted ropes, marks in clay, the abacus, and the soroban are all methods of keeping track of numbers. But the stored-program computer really did not come into existence until the 1830.

A score of years after the war of 1812, an English inventor and mathematician Charles Babbage was commissioned by the British government to develop a system for calculating the rise and fall of the tides.

Dozens, even hundreds of clerks busily calculating away throughout their lifetimes could not get their job done, let alone do it without errors. Babbage decided to build a device he called an analytical engine.

He designed the first programmable computer, complete with punched cards for data input. Incidentally, the punched card was not invented for use with the computer but was used as early as the 1700's by Bouchon and in the 1800s by Jacquard to control automatic looms (станок). Babbage adapted the idea for his computer, and it has been with us ever since.

Babbage gave the engine the ability to perform different types of mathematical operations. The machine was not confined to simple addition, subtraction, multiplication, or division, it had its own «memory» and, because of this «stored program», the machine could use different combinations and sequences of these to suit to purposes of the operator. It became an autonomous machine, able to perform on its own, once commanded to do so as were the automated looms and the common clock.

The machine of his dreams was never realized in his lifetime.

Yet Babbage's idea didn't die with him. Others made attempts to build mechanical, general-purpose, stored-program computers throughout the next century. In the process it became clear that mechanical methods of general-purpose computing on all but the most modest scale were simply not practical.

In 1941 a relay computer was built in Germany by Conrad Zuse. It was a major step toward the realization of Babbage's dream. The logical operations of the computer were alterable by changing the interconnections among the relays. At the same time, in the United States, International Business Machines (IBM) built a machine in cooperation with scientists working at Harward University under the direction of Prof. Aiken during the years from 1939 to 1944. The computer, called the Mark I Sequence-Controlled Calculator, was built to perform calculations for the Manhattan Project, which led toward the development of the atomic bomb.

The relay computer had its problems. Since relays are electromechanical devices, the switching contacts operate by means of electromagnets and springs. They are still fairly slow and very noisy. They also consume a lot of power, if their contacts become dirty or corroded, they are unreliable.

The gadget (приспособление) that was the basis for the first computer revolution was the vacuum tube, an electronic device invented early in the

twentieth century. The vacuum tube was ideal for use in computers. It had no moving parts, or at least no mechanical moving parts. It switched flows of electrons off and on at rates far faster than possible with any mechanical device. It was relatively reliable, lasting hundreds of hours before failure. Previously, computer designers could think only in terms of hundreds of calculations in a program to be run on a mechanical computer. Now they could easily conceive of programs with thousands of related computations using a vacuum-tube computer. The first vacuum-tube computer was built at Iowa State University at about the same time as the Mark I. It was the beginning of the revolution. It was called ABC (Atanasoff-Berry Computer). From the ABC a number of vacuum-tube digital computers evolved.

A splendid example of these first generation electronic computers is ENIAC (an acronym for Electronic Numerical Integrator and Calculator). ENIAC was over 90 tons and bulging into 3000 cubic feet and costing millions. Its 18 thousand vacuum tubes demanded 140 kilowatts of electrical power, enough to supply a block of buildings of respectable size. With its 16,000 bytes of random access memory and its 100-kilohertz clock, it was not quite up to the basic computer capability of modern computers. Since its programs were hardwired – that is, the programs operating the computer were established by physically changing the patterns of the wires interconnecting the vacuum tubes – it was not so flexible in its operation.

From the university laboratories the computer finally entered the wider world in 1951 with the delivery of the first UNIVAC I (Universal Automatic Computer).

In 1948 the next key element in spreading the practical – and impractical – applications of computers, the transistor, came into existence. The potential advantage of the transistor over the vacuum tube was almost as great as that of the vacuum tube over the relay. A transistor can switch flows of electricity as fast as the vacuum tubes used in computers, but the transistors use much less power than equivalent vacuum tubes, and are considerably smaller. With the transistor came the possibility of building computers with much greater complexity and speed than was considered even remotely possible just 10 years before.

The integrated circuit constituted another major step in the growth of computer technology. Until 1959 the fundamental logical components of digital computers were the individual electrical switches, first in the form of relays, then vacuum tubes, then transistors. In the vacuum tubes and relay stages, additional discrete components such as resistors, inductors, and capacitors were required in order to make the whole system work. These components were generally each about the same size as packaged transistors. Integrated circuit technology permitted the elimination of some of these components and «integration» of most of the others on the same chip of semiconductor that contains the transistor. Thus the basic logic element – the switch, or «flip-flop», which required two separate transistors and some resistors and capacitors in the early 1950's, could be packaged into a single small unit in 1960. The chip was a crucial development in the accelerating pace of computer technology.

UNIT V

1. Read and make a written translation of the following text into Russian.

Software

The chips and other electronic elements and the various peripheral devices constitute the computer's hardware. The hardware can do nothing by itself; it requires the array of programs, or instructions, collectively called software. The core of the software is an «operating system» that controls the computer's operations and manages the flow of information.

The operating system mediates between the machine and the human operator and between the machine and an «application» program that enables the computer to perform a specific task.

To understand the kind of tasks done by the operating system, consider the sequence of steps that must be taken to transfer a file of data from the primary memory to disk storage. It is first necessary to make certain there is enough space available on the disk to hold the entire file. Other files might have to be deleted in order to assemble enough continuous blank sectors. For the transfer itself sequential portions of the file must be called up from the primary memory and combined with «housekeeping» information to form a block of data that will exactly fill a sector. Each block must be assigned a sector address and transmitted to the disk. Numbers called checksums that allow errors in storage or transmission to be detected and sometimes corrected must be calculated. Finally, some record must be kept of where the file of information has been stored.

If all these tasks had to be done under the direct supervision of the user, the storage of information in a computer would not be worth the trouble. Actually the entire procedure can be handled by the operating system; the user merely issues a single command, such as «Save file». When the information in the file is needed again an analogous command (perhaps «Load file») begins a sequence of events in which the operating system recovers the file from the disk and restores it to the primary memory.

2. Using the plan given below, prepare reports to discuss general directions of microprocessor applications.

3. The application of microprocessors into control systems, particularly for vehicles.
4. The application into manufacturing systems and the means of production, which may include instruments as well as control devices.
5. The inclusion of microprocessors in the consumer goods to be produced.
4. The use of computer-based systems to design or manufacture, usually referred to as CAD/CAM.
5. Robot machines.

UNIT VI

1. Look through the text. How would you entitle it and why?

The electron beam is an addressing pointer of high definition and energy density that can easily be deflected. In storage tubes of the 1940’s there were

severe limitations to such addressing because of the use of surface change storage and inadequacies in focusing and deflecting the beam. Two recent innovations, storage within a semiconductor and compounded deflection, may bring us closer to realizing the inherent potential of beam addressing.

The addressing is in two parts. First, the beam is deflected by a short conical structure of low aberration and strikes normally one of the appertures of a matrix of lenslets.

The matrix is made up of two metal plates that have an array of holes (an 18 by 18 array on 1.5-mm centers) and are maintained at different potentials. Second, the beam is deflected by bars running along rows and columns between the holes of the matrix. No matter which lenslet is reached, the reduced beam will be subjected to the deflection. In this compounded deflection the accuracy and stability at each step need only be a small fraction of what would be required with a single step.

2. Read the text and sum up the information about a cache memory.

Cache Memory

A cache memory is a small, high-speed system memory that fits between the CPU and the main memory. It accesses copies of the most frequently used main-memory data. When the CPU tries to read data from the main memory, the cache memory will respond first if it has a copy of the requested data. If it doesn't, a normal main-memory cycle will occur.

Cache memories are effective because computer programs spend most of their memory cycles accessing a very small part of the memory.

A cache memory cell has three components: an address memory cell, an address comparator and a data memory cell. The data and address memory cells together record one word of cached data and its corresponding address in main memory. The address comparator checks the address cell contents against the address on the memory address bus. If they match, the contents of the data are placed on the bus.

An ideal cache memory would have many cache memory cells, each holding a copy of the most frequently used main-memory data. This type of cache memory is called fully associative because access to the data in each memory cell in through the data's associated, stored address.

Not all locations in the memory address space should be cached. Hardware I/O address shouldn't be cached because bits in an I/O register can and must change at any time, and a cache copy of an earlier I/O state may not be valid.

3. Study the «Memory Technology» table and fill in the information you know about different types of memory.

Memory Technology

Type	Predominant Technology	Cycle or access time
Registers and discrete bit storage	Monolithic integrated circuits	50 to 500 nanoseconds
High speed control and scratch-pads	Planar thin films	100 to 500 nanoseconds
High speed internal main memories	Magnetic core	0.3 to 5 microseconds
Random access auxiliary storage	Magnetic core	2 to 10 microseconds
On-line auxiliary storage	Electromechanical disk files	15 to 150 milliseconds
Off-line auxiliary storage	Magnetic tape serial access	Serial
…	…	…

4. Make your report about «The State-of-art and Future Development of Memory Technologies».

PART 2. *FOR SECOND YEAR STUDENTS* OF THE FACULTY OF TELECOMMUNICATIONS

UNIT I

I. *Read the text. Then read the titles. Which of the following titles is the best?*

a) Cellular Phone Network.
b) Personal Communications Services.
c) Cellular Radio Telephone
d) Types of Telephones.

Cellular radio telephone is also called cellular telephone or cell phone, it is a low-powered, lightweight radio transceiver (a combination transmitter–receiver) that provides voice telephone service to mobile users. Cellular telephones operate as portable telephones; whereas normal telephones require a cord that connects to a jack in order to access the extensive wire line networks operated by local telephone companies, cellular telephones are not restricted by a cord. 1_____.

Cellular telephones work by transmitting radio waves to cellular towers. 2_____. The area a tower can cover is referred to as a *cell;* the towers within these cells are networked to a central switching station, usually by wire, fiber-optic cable, or microwave. The central switching station handling cellular calls in a given area is directly connected to the rest of the wired telephone system. Cellular calls are picked up by the towers and relayed to the rest of the telephone network. Since the cells overlap, as a mobile caller moves from one cell into another, the towers «hand off» the call so communication is uninterrupted.

3_____, and cellular coverage is increasing in rural areas. Due to the convenience and mobility of cellular telephones, users generally pay a higher fee than they would for normal telephone use. A newer generation of cellular radio technology, called Personal Communications Services (PCS), operates much like earlier cellular services, but at higher frequencies (around 1900 MHz). PCS also utilizes completely digital transmissions, rather than the analog transmissions that many current cellular telephones use. Digital transmissions convert sound into digital form, which can be transmitted faster and more efficiently than analog signals.

Both cellular radio and PCS use high-frequency radio waves to transmit calls. High-frequency waves have short wavelengths that pass by a given point at a very high rate. They provide better sound quality than lower-frequency waves (such as AM radio) and ensure reliable cellular links to and from towers over short distances. However, high-frequency signals cannot effectively travel as far as low-frequency signals. For cellular networks, this limited range is advantageous, because it means the same frequencies can be reused at nearby locations. This ability to reuse frequencies is helpful, because there are a limited number of radio frequencies available to cell phone companies. 4_____.

The transceiver inside a cellular phone is a much more complex device than a conventional phone used over the wire line network. A cellular telephone has circuitry that creates a unique identity code that is used to locate and track

the telephone and is necessary for coordinating calls to and from the telephone, and for billing such calls.

New cellular telephones have several features. These new phones have a small liquid crystal screen that can display the telephone number that is being called, the number of an incoming call, or a short text message, much like a pager displays this information. Other types of cellular telephones have a variety of functions that include a memory for frequently called numbers and a lock to deter theft. 5_____.

Rechargeable batteries provide the usual source of power, but most cell phones can also be attached to the cigarette lighter in a vehicle or to some other external power device.

II. Read the text again. Choose the best sentence from the list below to complete each gap.

a. These towers vary in the area they cover and can receive nearby cellular telephone signals from 1,5–56 km distances.
b. Like other waves of energy, sound normally travels in straight lines, but sound can turn corners.
c. It also allows cellular network provides to accommodate a larger number of users.
d. Because mobile telephones use radio waves to send and receive calls, the device must include a power source.
e. Cellular telephones have become very popular with professionals and consumers as a way to communicate while away their regular phones.
f. The human ear does not hear all frequencies of sound in the same way, and a low sound is perceived as being less loud than a high sound of the same intensify.
g. Cellular phone networks exist in most metropolitan areas.

III. Choose the best answer on these questions according to the text.

1. What is the other name of cellular telephones?
   a. voice telephone service,
   b. radio transceivers,
   c. cellular radio telephones.
2. Where are radio waves of cellular telephones transmitted to?
   a. to cellular towers,
   b. directly to the wired telephone system,
   c. to rural areas.
3. What type of transmissions is more effective?
   a. analog,
   b. digital.
4. What is the unique identity code set aside for?
   a. to concert side into digital form,
   b. to locate and track the telephone,
   c. to display the telephone number.
5. What are the functions of mobile telephones?
   a. to receive nearby cellular telephone signals,

b. to send and receive calls,
c. for billing telephone calls.

IV. Here are some dictionary definitions of the words from the text. Each word has more than one definition. Choose the definition that fits each of the words in the text best.

1) cell a) a microscopic unit of living matter enclosing a nucleus with self-producing genes,
b) unit of an apparatus for producing electric current by chemical action, often of metal plates in acid, often part of a battery.

2) wave a) long ridge of water, esp. on the sea, between two long hollows,
b) wave like motion by which heat, light, sound or electricity is spread or carried.

3) company a) persons with whom one spends one's time,
b) number of persons united for business or commerce.

4) number a) quantity or amount,
b) one issue of a periodical, esp. for one day, week, etc.

V. Find words and expressions which mean the same as the following.

1) demand
2) zone
3) usually
4) profitable
5) fluid

VI. Make an outline of the text in 7–10 sentences.

UNIT II

I. Read the text. Then read the titles. Which of the following titles is the best?

a) Space Satellites.
b) Global Positioning System.
c) Segments of Global Positioning System.
d) Radio-Navigation Systems.

Global Positioning System (GPS) is a space-based radio-navigation system, consisting of 24 satellites and ground support. GPS provides users with accurate information about their position and velocity, as well as the time, anywhere in the world and in all weather conditions.

GPS, formally known as the Navstar Global Positioning System, was initiated in 1973. 1_____. GPS satellites carry atomic clocks that provide extremely accurate time. The time information is placed in the codes broadcast by the satellite so that a receiver can continuously determine the time the signal was broadcast. The signal contains data that a receiver uses to compute the locations of the satellites and to make other adjustments needed for accurate positioning. The receiver uses the time difference between the time of signal reception and the broadcast time to compute the distance, or range, from the receiver to the satellite. The receiver must account for propagation delays, or

decreases in the signal's speed caused by the ionosphere and the troposphere. With information about the ranges to three satellites and the location of the satellite when the signal was sent, the receiver can compute its own three-dimensional position.

An atomic clock synchronized to GPS is required in order to compute ranges from these three signals. However, by taking a measurement from a fourth satellite, the receiver avoids the need for an atomic clock. 2_____.

GPS comprises three segments: the space, control, and user segments. The space segment includes the satellites and the Delta rockets. GPS satellites fly in circular orbits at an altitude of 20,100 km (12,500 mi) and with a period of 12 hours. The orbits are tilted to the earth's equator by 55 degrees to ensure coverage of polar regions. 3_____. Each satellite contains four atomic clocks.

The control segment includes the master control station in Colorado, and monitor stations in the Atlantic, Indian and South Pacific Oceans. These stations monitor the GPS satellites. The control segment uses measurements collected by the monitor stations to predict the behavior of each satellite's orbit and clock. The prediction data is *uplinked,* or transmitted, to the satellites for transmission to the users. 4_____.

The user segment includes the equipment of the military personnel and civilians who receive GPS signals. With more than 500,000 GPS receivers, the civilian community has its own large and diverse user segment. Surveyors use GPS to save time over standard survey methods. 5_____. GPS tracking systems are used to route and monitor delivery vans and emergency vehicles. In a method called *precision farming,* GPS is used to monitor and control the application of agricultural fertilizer and pesticides. GPS is available as an in-car navigation aid and is used by hikers and hunters. It is also used on the Space Shuttle. Because the GPS user does not need to communicate with the satellite, GPS can serve an unlimited number of users.

II. Read the text again. Choose the best sentence from the list below to complete each gap.

a) We know that the atom is mostly empty space with a minute central nucleus some tens of thousands of times smaller than the atom.
b) Powered by solar cells, the satellites continuously orient themselves to point their solar panels toward the sun and their antennae toward the earth.
c) GPC is used by aircraft and skips for en route navigation and for airport or harbor approaches.
d) GPC determines location by computing the difference between the time that a signal is sent and the time it is received.
e) That makes it possible to send signals long distances, and in the XX century the world was united without wires.
f) Thus, the receiver uses four satellites to compute latitude, longitude, altitude, and time.
g) The control segment also ensures that the GPC satellite orbits and clocks remain within acceptable limits.

III. Choose the best answer to these questions according to the text.

1. What are the constituent parts of Global Positing System?
   a) solar cells, solar panels,
   b) latitude, longitude, altitude, and time,
   c) 24 satellites and ground support.
2. When was GPC initiated?
   a) in 1973,
   b) in 1955,
   c) in 1971.
3. What is the way to avoid the need for an atomic clock?
   a) to use a code,
   b) to take a measurement from a fourth satellite,
   c) to account for propagation delays.
4. Why are the orbits of GPC satellites titled to the earth's equator?
   a) to avoid the need for an atomic clock,
   b) to orient themselves to point their solar panels, toward the sun and their antennae toward the earth,
   c) to ensure coverage of polar regions.
5. What segment is necessary to predict the behavior of each satellite's orbit and clock?
   a) the space segment,
   b) the control segment,
   c) the user segment.

IV. Here are some dictionary definitions of words from the text. Each word has more than one definition. Choose the definition that fits each of the words in the text best.

1) time — a) the passing of all the days, months, and years, taken as a whole; b) occasion.
2) receiver — a) person who receives, b) part of an apparatus for receiving smth.
3) segment — a) part cut off or marked off by a line, b) division or section.
4) control — a) power or authority to direct, order or restrain; b) station at which cars taking part in a race may stop for overhaul, etc.

V. Find words and expressions which mean the same as the following.

1. backing
2. guarantee
3. have or hold within itself
4. staff
5. unbounded

VI. Make an outline of the text in 7-8 sentences.

UNIT III

I. Read the text. Then read the titles. Which of the following title is the best?

a) How the Computer Works.
b) How the Web Works.
c) The World Wide Web.
d) How the Internet Works.

When users want to access the Web, they use the Web browser on their client computer to connect to a Web server. Client computers connect to the Web in one of two ways. Client computers with dedicated access to the Web connect directly to the Web through a router (a piece of computer hardware that determines the best way to connect client and server computers) or by being part of a larger network with a direct connection to the Web. Client computers with dial-up access to the Web connect to the Web through a modem, 1_____. Some modems send signals over cable television lines or special high-capacity telephone lines. The client computer and the Web server use a set of rules for passing information back and forth. The Web browser knows another set of rules with which it can open and display information that reaches the client computer.

Web servers hold Web documents and the media associated with them. 2_____. Client computers access information from Web servers, and any computer that a person uses to access the Web is a client, so a client could be any type of computer. The set of rules that clients and servers use to talk to each other is called a protocol. The Web, and all Internet formats, uses the protocol called TCP/IP (Transmission Control Protocol/Internet Protocol). However, each part of the Internet – such as the Web, gopher systems, and File Transfer Protocol (FTP) systems – uses a slightly different system to transfer files between clients and servers.

The address of a Web document helps the client computer find and connect to the server that holds the page. The address of a Web page is called a Uniform Resource Locator (URL). A URL is a compound code that tells the client's browser three things: the rules the client should use to reach the site, the Internet address that uniquely designates the server, and the location within the server's file system for a given item. An example of a URL is http://encarta.msn.com/. The first part of the URL, *http://,* shows that the site is on the World Wide Web. Most browsers are also capable of retrieving files with formats from other parts of the Internet, such as gopher and FTP. Other Internet formats use different codes in the first part of their URLs – for example, gopher uses *gopher://* and FTP uses *ftp://*. The next part of the URL, *encarta.msn.com,* gives the name, or unique Internet address, of the server on which the Web site is stored. Some URLs specify certain directories or files, such as http://encarta.msn.com/explore/default.asp – *explore* is the name of the directory in which the file *default.asp* is found.

The Web holds information in many forms, including text, graphical images, and any type of digital media files: including video, audio, and virtual reality files. Some elements of Web pages are actually small software programs in their own right. These objects, called applets (3_____), follow a set of instructions written by the person that programmed the applet. Applets allow users to play games on the Web, search databases, perform virtual scientific experiments, and many other actions.

The codes that tell the browser on the client computer how to display a Web document correspond to a set of rules called Hypertext Markup Language (HTML). Each Web document is written as plain text, and the instructions that tell the client computer how to present the document are contained within the document itself, encoded using special symbols called HTML tags. The browser knows how to interpret the HTML tags, so the document appears on the user's screen as the document designer intended. In addition to HTML, some types of objects on the Web use their own coding. Applets, for example, are mini-computer programs that are written in computer programming languages such as Visual Basic and Java.

Client-server communication, URLs, and HTML allow Web sites to incorporate hyperlinks, which users can use to navigate through the Web. Hyperlinks are often phrases in the text of the Web document that link to another Web document by providing the document's URL when the user clicks their mouse on the phrase. 4_____. Hyperlinks allow users to jump between diverse pages on the Web in no particular order. 5_____, and scientists believe it bears a striking resemblance to the way the human brain accesses stored information. Hyperlinks make referencing information on the Web faster and easier than using most traditional printed documents.

II. Read the text again. Choose the best sentence from the list below to complete each gap.

a) From a small application, another name for a computer program.
b) The client's browser usually differentiates between hyperlinks and ordinary text by making the hyperlinks a different color or by underlining the hyperlinks.
c) They can be ordinary personal computers, powerful mainframe computers, or anywhere in the range between the two.
d) These are essentially Web sites containing searchable data base of Uniform Resource Locators (URLs).
e) A hardware device that translates information from the computer into signals that can travel over telephone lines.
f) This method of accessing information is called associative access.
g) These will enable the user to type the desired word or by clicking on the letters to form it in a utility window.

III. Choose the best answer to these questions according to the text.

1. How is the part of computer hardware, responsible for the best connection between client and server computers, called?
   a) a modem,
   b) a router,
   c) an applet.
2. What does a Uniform Resource Locator (URL) stand for?
   a) Web page address,
   b) Web document,
   c) Internet format.
3. What is the computer language, used in the creation of applets?

a) Ada,
b) C#,
c) Java.

4. What does the address of a Web document serve for?
   a) It is used to name web documents.
   b) It helps the client computer to find the server that holds the page.
   c) It specifies certain directories and files.
5. What is the main function of hyperlinks in a client-server communication?
   a) Hyperlinks substitute traditional printed documents.
   b) Hyperlinks quicken the search of referencing information.
   c) Hyperlinks allow users to jump between different pages on the Web in a strict order.

IV. Here are some dictionary definitions of words from the text. Each word has more than one definition. Choose the definition that fits each of the words in the text best.

1. network a) a group of broadcasting stations connected to transmit the same program simultaneously,
   b) a chain of inter connected operations, computers, etc.
2. file a) a collection of related data under a specific name,
   b) a container for keeping papers in order.
3. code a) a set of rules or conventions,
   b) a set of program instructions.
4. protocol a) the ceremonial etiquette accepted as correct in official dealings between heads of state or diplomatic officials,
   b) the formatting of data in an electronic communications system.

V. Find words and expressions which mean the same as the following.

1. admission
2. definite
3. directions
4. to decipher
5. various

VI. Make up an outline of the text (10–12 sentences).

UNIT IV

I. Read the text. Then read the titles. Which of the following titles is the best?

a) Office Equipment.
b) Office Automation.
c) Computers and Periphery.
d) How the Modem Works.

The rapid growth of the service sector of the economy has furnished a new market for sophisticated office automation. Computers 1_____ and specialized software programs are taking over tasks such as facsimile transmission or FAX, mail, and telecommunications that were once performed by separate pieces of equipment. In fact, the computer has virtually taken the place of typewriters,

calculators, and manual accounting techniques and is rapidly taking over graphics design, production scheduling, and engineering design.

Desktop PCs have become increasingly affordable as a result of industry-wide adoption of the architecture of the PC introduced in 1981. Although it has become feasible to provide virtually every office worker with a PC, 2_____. In the late 1980's and early 1990's, many companies began programs of linking or «networking» multiple PCs into a unified system.

The local area network (LAN) was created in response to the need for a standardized system of linking computers together in a company. The most common method used to connect computers to a network is by means of coaxial cables. Newer-generation networks use optical fiber connections. When computers are not in close physical proximity, networks may use microwave radio or infrared radiation to link the computers. Microwave radio requires a dish antenna for transmission and reception; infrared radiation requires a lens for transmission and a mirror and lens for reception. 3_____.

The need for computer «connectivity» has established the usefulness of the peripheral device known as the modem. Modems permit two computers to communicate by telephone in order to access databases, transmit files, upload and download facsimile transmissions, and send and receive electronic mail. Early transmission speeds using this equipment were relatively slow – 300 baud. 4_____.

Text materials in typed or printed form can be input directly into a computer by means of a scanner. To read text, optical character recognition (OCR) software must first be used to convert printed documents electronically into computer-readable files. Scanners obviate the need to rekey printed text in order to input it; they can also be used to input graphic material.

Computer-based electronic message systems are an alternative to telephonic communications or conventional interoffice memoranda.

E-mail has become a key part of the communications networks of most modern offices. Data and messages can be transmitted from one computer to another using telephone lines, microwave links, communications satellites, or other telecommunications equipment. 5_____. E-mail is sent through a company's own local area network or beyond, through a nationwide or worldwide communications network. E-mail services use a central computer to store messages and data and to route them to their intended destination. With a subscription to a public e-mail network, an individual PC user needs only a modem and a telephone to send and receive written or vocal messages.

II. Read the text again. Choose the best sentence from the list below to complete each gap

a) Other methods used for wide-area networking include telephone and communications-satellite linkage.

b) Since all e-mail addresses are written in Latin script, no special procedures are required to locate one in Russia.

c) either stand-alone or as part of a network

d) The same message can be sent to a number of different addresses.

e) Some modems now operate at speeds of more than 50,000 baud and have error-checking and data-compression features.
f) It is more cost-effective for PC users to share files and common peripherals such as printers, facsimile boards, modems, and scanners.
g) It can narrow down the scope of the search considerably.

III. Choose the best answer to these questions according to the text.

1. When did it become possible to provide each office worker with a PC?
   a) in 1981,
   b) in the late 1980's,
   c) in the early 1990's.
2. What may networks use to link computers, which are not in direct closeness?
   a) optical fiber connections,
   b) telephone and communications – satellite linkage,
   c) microwave radio and infrared radiation.
3. How is the device, one of the functions of which is to send and receive electronic mail, called?
   a) a scanner,
   b) a modem,
   c) a fax.
4. What is the device used to input graphic material?
   a) a printer,
   b) a Xerox,
   c) a scanner.
5. What should a PC user have to subscribe to a public e-mail network?
   a) modem and scanner,
   b) modem and telephone,
   c) telephone and printer.

IV. Here are some dictionary definitions of words from the text. Each word has more than one definition. Choose the definition that fits each of the words in the text best.

1) program	a) a scheduled radio or television broadcast, b) a sequence of instructions fed into a computer.
2) office	a) a room or building where business is carried out, b) a position of authority.
3) satellite	a) a planet orbiting another, b) a man-made object orbiting the earth, moon, etc.
4) address	a) a place where a person resides, b) a specific memory location where information is stored.

V. Find words and expressions which mean the same as the following.

1) correspondence
2) apparatus
3) to contain
4) to allow

5) to keep

VI. Make up an outline of the text (7–9 sentences).

UNIT V

I. Read the text. Then read the titles. Which of the following titles is the best?

a) A Computer-Based Network.
b) World Wide Web.
c) A Part of the Internet.
d) The Internet.

World Wide Web (www) is a computer-based network of information resources that a user can move through by using links from one document to another. The information on the World Wide Web is spread over computers all over the world. 1_____.

The Web has become a very popular resource since it first became possible to view images and other multimedia on the Internet, a worldwide network of computers, in 1993. The Web offers a place where companies, institutions, and individuals can display information about their products, research, or their lives. 2_____. A small percentage of information on the Web is only accessible to subscribers or other authorized users. 3_____. Museums, libraries, government agencies, and schools make the Web a valuable learning and research tool by posting data and research 4_____. Users can read text, view pictures, listen to sounds, and even explore interactive virtual environments on the Web.

Like all computer networks, the Web connects two types of computers– clients and servers – using a standard set of rules for communication between the computers. The server computers store the information resources that make up the Web, and Web users use client computers to access the resources. A computer-based network may be a public network – such as the worldwide Internet – or a private network, such as a company's intranet. 5_____. The Internet also encompasses other methods of linking computers, such as Telnet, File Transfer Protocol, and Gopher, but the Web has quickly become the most widely used part of the Internet. It differs from the other parts of the Internet in the rules that computers use to talk to each other and in the accessibility of information other than text. 6_____.

II. Re-read the text. Choose the best sentence from the list below to complete each gap.

a) The Web also carries information in a wide spectrum of formats.
b) The Web has become a forum for many groups and a marketplace for many companies.
c) The World Wide Web is often referred to simply as «the Web».
d) It is much more difficult to view pictures or other multimedia files with methods other than the Web.
e) Anyone with access to a computer connected to the Web can view most of that information.
f) The Web is a part of the Internet.

III. Choose the best answer to these questions according to the text.

1. What methods of linking computers does the Internet encompass?
   a) Telnet, File Transfer Protocol,
   b) Gopher,
   c) Telnet, Gopher, File Transfer Protocol.
2. What stores the information resources?
   a) the Internet,
   b) a private network,
   c) the server computers.
3. What can users do on the Web?
   a) read text, view pictures,
   b) listen to sounds, explore interactive virtual environments,
   c) everything that is mentioned above.
4. How does the Web connect two types of computers?
   a) by posting data and research,
   b) using a standard set of rules for communication between the computers,
   c) with a company's intranet.
5. Is a company's intranet a…
   a) public network?
   b) private network?
   c) computer program?

IV. Here are some dictionary definitions of words from the text. Each word has more than one definition. Choose the definition that fits each of the words in the text best.

1) view	a) to consider, regard, think about; b) to examine, look at thoroughly.
2) access	a) means of entering, way in, entrance; b) means or right of using, reaching, or obtaining.
3) encompass	a) to include or be concerned with; b) to surround completely.
4) set	a) a group of connected things, group forming a whole; b) an apparatus for receiving and showing television signals.

V. Find words and expressions which mean the same as the following.

1) someone who receives the use of a service over a period of time, for which they pay
2) to give formal permission to or for
3) to examine carefully in order to find out more
4) having great usefulness

VI. Make up the outline of the text.

UNIT VI

I. Read the text. Then read the titles. Which of the following titles is the best?

   a) Continuing Communications Revolution.
   b) Technological Changes in Communications.

c) Technology and the Media.
d) Visions of the Future World.

The sense that the world is in the middle of a continuing communications revolution has been strong since the 1960's when television made its great breakthrough. It was then that the word «media» became part of daily speech, covering not only electronic media, live television, but older print media, particularly the press.

The most important technological changes in communications since the 1960's, apparent in the way that both the Internet and the media have developed, have all involved what has been called «convergence» or what in France has been described more poetically as «the ballet of the electrons». 1_____. Binary digit signals enable language, numbers, images, patterns, and music to be communicated through a common technology. 2_____. They would have seemed in the past to have belonged not to science but to science fiction. The word «information» itself seems to be inadequate. It covers «entertainment», raising different issues, and it encompasses ways of learning as well as of communicating.

The continuing communications revolution has brought the media not only into the library or the office but into the home. The modern home has been a place of entry not only for books, magazines, newspapers, cassettes, discs, and videos but for «hardware», including radio and television sets, record players, telephones, typewriters, cameras, projectors, calculators, and computers. 3_____. They are all products, hardware or software, of the continuing communications revolution. Each one, of course, has had its effect on the particular home, and not all modern homes include them. 4_____. Nonetheless, what were once thought of as luxuries – television sets, for example – become to be thought of as necessities, and what were once thought of as «novelties» (with an element of miracle about them) begin to be taken for granted.

5_____. What will be the next stages? Will old media disappear? For example, what will happen to the book or to the compact disc? How will the newspaper change? Will it ever become completely electronic? Can public broadcasting survive? What is the future of digital terrestrial television? Will we have new business alliances and consortia? 6_____. At the individual level will E-mail displace letters or fax? Will the relationship between media producers and editors and users (or customers) become more interactive?

At the more fundamental level will digitalization divide the world even more than at present into «haves» and «have nots» – those countries that have the capacity and ability to develop new digitalized networks and those that do not? Will the concentration of economic power in the hands of those who now own quite different segments of media – from books to motion pictures and from cable to satellite – endanger individual freedom? Will the opportunity of choice, offered to individuals, mean that the field of choice will be genuinely widened? May we not have more and more of the same thing?

It is logical to separate out questions relating to technological developments from questions relating to ownership and control, but, in practice, visions of the future world involve bringing them together. It is difficult in present

circumstances to avoid the blurring of «image» (seeing the world as it is presented to us or as we present it to ourselves) and «reality». 7_____. The media in their mediation can create what has come to be called «virtual reality»; and Internet can offer fantasy ways of escaping from the restraints of life as it is lived to a world of cyberspace. Cyber words have multiplied during the 1980's and 1990's – from «cybernaut» to «cyborg» through a whole new vocabulary.

I*I. Re-read the text. Choose the best sentence from the list below to complete each gap.*

a) Their physical presence and access to them depends on family income and choice.
b) They are already forming.
c) Can «truth» survive?
d) The possibilities seem almost limitless.
e) The questions multiply.
f) Each has its own history: each poses distinct questions about technology and use.
g) Digital technology, bringing together computing and solid-state electronics, certainly revolutionizes telecommunications and the media.

III. Choose the best answer to these questions according to the text.

1. When did the word «media» become part of daily speech?
   a) in 1960,
   b) since 1960's,
   c) since the 1960's when television made its great breakthrough.
2. What revolutionizes telecommunications and the media?
   a) digital technology,
   b) communications revolution,
   c) digital technology together with computing and solid-state electronics.
3. What covers «entertainment»?
   a) cassettes, discs, videos,
   b) information,
   c) the ballet of the electrons.
4. What can create «virtual reality»?
   a) media,
   b) Internet,
   c) cyberspace.
5. Why do not all modern homes include products of the «continuing communications revolution»?
   a) because they are «novelties»,
   b) because they are luxuries,
   c) because access to them depends on family income and choice.

IV. Here are some dictionary definitions of words from the text. Each word has more than one definition. Choose the definition that fits each of the words in the text best.

1) apparent a) easily seen or understood;
   b) seeming to be real but not necessarily so.
2) income a) money which one receives regularly;

b) money provided by one's family rather than earned by working.

3) escape a) to be unnoticed or forgotten by;
b) to get away.

4) luxury a) a condition of great comfort provided without any consideration of the cost;
b) something that is very pleasant and enjoyable but not necessary and not often had or done.

V. Find words and expressions which mean the same as the following.

a) to accept a fact or situation without questioning its rightness
b) to ask a question that is difficult or needs to be carefully thought about
c) to go out of sight
d) an important advance or discovery, often after earlier failures

VI. Make up the outline of the text.

PART 3. *FOR SECOND YEAR STUDENTS* OF THE FACULTY OF ECONOMICS

UNIT I

I. Read the text. Then read the titles. Which of the following titles is the best?

a) Health Insurance in Different Countries
b) Newspapers in Different Countries
c) Job Advertisements in Different Countries
d) Management in Different Countries

Checking out job advertisements is popular with executives worldwide. But though the activity is universal, is the same true of the advertisements?

Are executive positions in different countries advertised in the same way? A comparison of the job pages of *The Times* of London, *Le Mode* of Paris and Germany's *Frankfurter Allgemeine Zeitung* suggests «not».

First, what UK job seekers consider an essential piece of information – what the post pays – is absent from French and German adverts. It is often to raise this themselves. In contrast, most British advertisements mention not only salary, but also other material incentives including a car and fringe benefits. French or German advertisements rarely refer to these. 1_____. In France and Germany, that information is given by the level of experience and qualifications demanded. Salary can be assumed to correspond with this.

If French and German adverts are vague about material rewards, they are precise about qualifications. 2_____. In Germany, for example, a technical director for a machine tool company will be expected to have a Dipl.-Ing. degree in Mechanical Engineering.

French advertisements go further. They may specify not just the type of grande école degree, but sometimes a particular set of institutions (formation supérieure X, Centrale, Mines, HEC, ESSEC), these being the most famous grandes écoles.

All this contrasts with the vague call for «graduates» (or «graduate preferred») which is found in the UK. British companies often give the impression that they have a particular type of applicant in mind, 3_____. Their wording suggests hope and uncertainty, as in this advertisement from *The Times*: «Whilst educational standards are obviously important, a large measure of personal enthusiasm is likely to secure the success of your application».

In the UK qualifications beyond degree level make employers nervous, but in France or Germany it is difficult to be «overqualified». Many people on German executive boards have doctorates and the French regard five or six years of intensive post baccalauréat study at a grand école as ideal training. British managers are not selected primarily for their intelligence, as managers are in France, or for their expert knowledge, as in Germany. 4_____. This difference is also shown in the personal qualities mentioned. British advertisements stress energy, ability to communicate and motivate. German advertisements like achievement, but it tends to be less personality-driven. German companies want candidates with sound knowledge, experience and competence in their field. They rarely recruit novices as do British employers. French advertisements refer more to intellectual qualities like analytical aptitude

and independence. 5_____. By French and German standards, British advertisements are very racy. They attract young executives with challenges such as: «Are you reaching your potential?», whereas French and German advertisements are boringly direct, aiming to give information about the job rather than to sell it.

All this points to three different conceptions of management. The French regard it as intellectually complex, the Germans as technically complex, and the British as interpersonally complex. But they agree on one thing it's complex.

II. Read the text again. Choose the best sentence from the list to complete each gap.

a) but are not sure about the supply and will consider others.
b) The market is becoming increasingly competitive.
c) The attention given to rewards in the UK indicates the importance of the job and its responsibility.
d) Even the tone of the job advertisements is different in the three countries.
e) They usually demand «a degree in…», not simply «a degree».
f) For the first time the shares of the company can be bought in Europe.
g) Instead, the British give importance to social, political and leadership skills.

III. Choose the best answer to these questions according to the text.

1. What do most British advertisements consider an essential price of information?
   a) religion; b) driving license; c) material incentives.
2. What are French and German adverts precise about?
   a) hobbies; b) qualification; c) material rewards.
3. What do the British give importance to?
   a) intelligence; b) social, political and leadership skills;
   c) sound knowledge.
4. What is the tone of French and German adverts?
   a) boringly direct; b) racy; c) energetic.
5. How do the French regard management?
   a) as technically complex; b) as interpersonally complex;
   c) as intellectually complex.

IV. Here are some dictionary definitions of words from the text. Each word has more than one definition. Choose the definition that fits each of the words in the text best.

1. degree — a) a scientific division of an angle or scale;
   b) diploma (of a university).
2. sound — a) healthy, not rotten;
   b) thorough, deep.
3. board — a) group of persons controlling a business or a government department;

b) large flat piece of wood or other material for a special purpose, sometimes bare, sometimes covered with cloth leather, etc.

4. racy a) having strongly marked qualities which show race or kind;
b) vivid, spirited, vigorous.

V. Find word and expressions which mean the same as the following.

1) ability
2) not clear
3) bonus
4) to require
5) to point

VI. Write down key words, phrases and sentences.

VII. Make an outline of the text.

UNIT II

I. Read the text. Then read the titles. Which of the following titles is the best?

a) New Tendencies in Network Communications.
b) New Tendencies in Advertising.
c) New Tendencies in Economic Globalization.
d) New Tendencies in Recruitment.

Members of America's professional and managerial classes have always left college confident of at least one thing: they had taken their last test. From here on, they could rely on charm, cunning and/or a record of accomplishment to propel them up the corporate ladder. But that's not necessarily true any longer. A growing number of companies, from General Motors Corp. to American Express Co., are no longer satisfied with traditional job interviews. Instead, they are requiring applicants for many white-collar jobs – from top executives – down to submit to a series of paper-and-pencil tests, role-playing exercises, simulated decision-making exercises and brainteasers. 1_____.

The tests are not about mathematics or grammar, nor about the basic technical skills for which many production, sales and clerical workers have long been tested. Rather, employers want to evaluate candidates on intangible qualities: Is she creative and entrepreneurial?

Can he lead and coach? Is he flexible and capable of learning? Does she have passion and a sense of urgency? 2_____. Most important, will the potential recruit fit the corporate culture?

These tests, which can take from an hour to two days, are all part of a broader trend. «Companies are getting much more careful about hiring», said Paul R. Ray Jr., chairman of the Association of Executive Search Consultants.

Ten years ago, candidates could win a top job with the right look and the right answers to questions such as «Why do you want this job?» Now, many are having to face questions and exercises intended to learn how they get things done.

They may, for example, have to describe in great detail not one career accomplishment but many – so that patterns of behavior emerge. They may face questions such as «Who is the best manager you ever worked for and why?» or «What is your best friend like?» 3_____.

The reason of the interrogations is clear: many hired work out badly. About 25 percent of recently hired senior executives are judged failures, according to the Center for Creative Leadership in Greensboro, North Carolina, which surveyed nearly 500 chief executives.

4_____. Searching and training can cost from $5,000 for a lower-level manager $250,000 for a top executive. Years of corporate downsizing, a trend that has slashed layers of management, has also increased the potential damage that one bad executive can do. With the pace of change accelerating in markets and technology, companies want to know how an executive will perform, not just how he or she has performed.

«Years ago, employers look for experience – has a candidate done this before?» said Harold P. Weinstein, executive vice-president of Caliper, a personnel testing and consulting firm in Princeton, New Jersey. «But having experience in a job does not guarantee that you can do it in a different environment.»

At this point, most companies have not shifted to this practice. Some do not see the need or remain unconvinced that such testing is worth the cost. But human-resource specialists say anecdotal evidence suggests that white-collar testing is growing in popularity. 5_____. With so little information on which to base a decision, «most people hire people they like, rather than the most competent person», said Roy Owens, a psychologist in Snohomish, Washington, who sizes up executive candidates. Research has shown, he said, that «most decision makers make their hiring decisions in the first five minutes of an interview and spend the rest of the time rationalizing their choice.»

Besides, with advice on how to land a better job about as common as a ten-dollar bill, many people are learning to play the interview game.

Even companies that have not started extensive testing have toughened their hiring practices. Many now perform background checks, for example, looking for signs of drug use, violence or sexual harassment. But the more comprehensive testing aims to measure skills in communications, analysis and organization, attention to detail and management style; personality traits and motivations that behavioral scientists say predict performance.

II. Read the text again. Choose the best sentence from the list to complete each gap.

a) Most young entrepreneurs do not have time to read the magazine once a week.
b) What has brought so many employers around to testing is a sense of the limitations in the usual job interview.
c) How will he function under pressure?
d) The cost of bringing the wrong person on board is sometimes huge.
e) They believed that sales would generate enough income.

f) Others put candidates through a long series of interviews by psychologists or trained interviewers.
g) The answers, psychologists say, reveal much about candidate's management style and about himself or herself.

III. Choose the best answer to these questions according to the text.

1. What do employers want to evaluate potential recruits on?
   a) technical skills; b) intangible qualities; c) mathematics.
2. What do companies want to know?
   a) how an executive has performed;
   b) how an executive will perform;
   c) how an executive hasn't performed.
3. How are about 35 percent of recently hired senior executives judged?
   a) failures; b) geniuses; c) unhealthy.
4. What is growing in popularity as human-resource specialists say?
   a) traditional job interviews; b) grammar tests; c) white-collar testing.
5. What question could candidates be asked to win a top job ten years ago?

a) What is your friend like?
b) Why do you want this job?
c) Who is the best manager you ever worked for and why?

IV. Here are some dictionary definitions of words from the text. Each word has more than one definition. Choose the definition that fits each of the words in the text best.

1) to land — a) to come to a land; b) to obtain.
2) recruit — a) someone who starts to work for a company; b) new soldier, new member of a club.
3) executive — a) person in business who makes decisions/plans; b) which puts things into action.
4) background — a) the back part of a painting against which the foreground stands out; b) person's past experiences, education, environment.

V. Find words and expressions which mean the same as the following.

1) feature
2) to cut
3) office job
4) to get
5) to persuade

VI. Write down key words, phrases and sentences from each paragraph.

VII. Reduce the text to one fifth of its original length preserving the most important information.

UNIT III

1. Read the text. Then read the titles. Which of the following titles is the best?

a) Reuters
b) Bloomberg Multimedia Empire
c) The New York Exchange
d) The Internet

Ubiquity, says Michael Bloomberg, was never his intention. Nonetheless, his name seems to be everywhere these days. A new deal with AT&T, announced on Monday, will plaster the Bloomberg name on Internet cell phones. An autobiography, *Bloomberg By Bloomberg*, is out in stores this week.1_____. He also syndicates radio programming, publishes a consumer financial magazine and maintains a Web site that says gets 45,000 visitors a day.

None of these, however, represents the core business of this 55-year-old from Medford, Massachusetts; they are all parts of a multimedia empire founded in 1981 when Bloomberg left Salomon Brothers with $10 m and an idea centred on the most basic and valuable of late 20th century commodities: information. Bloomberg set to work, with the money and a small group of computer programmers, to come up with an analytical system that would be simple for brokers to use. With some initial financial backing from Merrill Lynch, he built his network to deliver stock and bond information, a database of corporations' histories and analysis. And the name is Bloomberg.

Today, Bloomberg terminals, for which subscribers pay $1,200 a month, sit on the desks of 75,000 financial analysts around the world. 2_____. Bloomberg's name has become a one-man brand, prominent throughout the investment and newsgathering industries. Yet, unless you travel in the financial world, you may not have seen his empire growing. Rupert Murdoch and Ted Turner probably have vaster holdings, but Bloomberg, with his privately held company, may exert more autocratic control than any one man in the information business.

A recent visit to Bloomberg world headquarters on Manhattan's Park Avenue found people crowding into and through the lobby as if it were the trading floor of the New York Stock Exchange. On this day, many of the young employers were carrying advance copies of *Bloomberg By Bloomberg*, a clear demonstration of what one outsider described as the «cultish» devotion employers seem to have for the man, his empire and his vision.

3_____. Although his desk is off to one side, right next to a small glass-enclosed sitting area, nearby employers can easily hear him on the phone.

Surrounded by state-of-the-art digital equipment which powers his information network, this John Hopkins-educated engineer with an MBA from Harvard keeps a slide rule on his desk. («Other people must be smarter than I am, because they can use calculators and see relationships; I think calculators mask.») He says he wrote his book on a yellow pad.

He disdains critics who predict that the Internet will displace the need for the «Bloomberg box»: 4_____. «Our long distance bills, hardware, depreciation and money sent to phone companies, is about $100 m a year», he

said. «If the Internet really worked and I could get our customers to come to us though the Internet, we'd save $100 m.»

«Why can we charge $1,200 a month and these other idiots can't get away with anything?» he asks. «Because on the Internet, when you try to charge for anything, usage goes to zero. The data that we have is publicly available, but the value added is in the categorization and the utilities that let you do something with it.»

Though Bloomberg has fewer subscribers than Reuters and Dow Jones / Telerate, his competitors in the financial information business, his system is growing faster and is often praised as easier to use. 5_____. What happens next, as Bloomberg figures it, is equal parts luck and design.

«There are many reasons why some succeed and others don't», Bloomberg writes. «Three things separate the winners from the losers over the long term: time invested, interpersonal skills and plain old-fashioned luck.»

II. Re-read the text. Choose the best sentence from the list to complete each gap.

a) He has turned his original concept into a reported $1 b-a-year multimedia news and information empire.
b) The revenue from advertising was very low.
c) Bloomberg claims he doesn't pretend to know the direction he'll go.
d) People can now buy and sell shares from home.
e) These premises are crowded, but no one, not even Bloomberg, has a private office.
f) He owns a news wire service and a satellite television network.
g) The Internet, he asserts, is nothing more than a delivery system – and an unreliable one at that.

III. Choose the best answer to these questions according to the text.

1. When was Bloomberg multimedia empire founded?
   a) 1860; b) 1937; c) 1981.
2. What is the most basic and valuable of late 20th century commodities?
   a) oil; b) information; c) gold.
3. What control may Bloomberg exert in the information business?
   a) anarchic; b) democratic; c) autocratic.
4. What is available to all employers?
   a) free food and drinks; b) private offices; c) tokens for pinball games.
5. What is one of the things separating winners from losers?
   a) big sums of money; b) pedigree; c) plain old-fashioned luck

IV. Here are some dictionary definitions of words from the text. Each word has more than one definition. Choose the definition that fits each of the words in the text best.

1) bond a) link, joining together,
   b) paper showing that money has been lent to the government.
2) vision a) ability to look and plan ahead;

b) ability to see.

3) to charge a) to put a cartridge in a gun; to put electricity in a battery;
b) to make someone play.

4) brand a) identification mark made (on cattle) by a hot iron;
b) sort of product made by one manufacturer.

V. Find words and expressions which mean the same as the following.

1) rival
2) failure
3) being everywhere
4) to claim
5) merchandise

VI. Write down key words and the topic sentences from each paragraph.

VII. Give a short summary on the text.

UNIT IV

I. Read the text ***Proven environmental commitment helps create committed customers.*** *Then read the sentences given below. Which of the following sentences renders the idea of the text best.*

a. Patagonia, a Californian company, is an outdoor clothing firm with a commitment to environment causes.
b. Patagonia sells its products through retail outlets and by mail.
c. The company runs its affairs in an ethical and honest manner.
d. The overall objective of Patagonia's environmental education policy is to create committed customers.

When self-proclaimed «Patagonics» dial up Patagonia, they know they will receive more than a high-quality fleece anorak or a waterproof pair of hiking boots. Thanks to the California-based retail firm's outdoor clothing catalog and its exemplary method of communicating, its corporate environmentalism, customers are not only knowledgeable about the company's environmental progress, they are loyal*, too.

When purchasing products from Patagonia, 1_____. Patagonia's example demonstrates good green-marketing strategies.

Educate customers on environmental product attributes and benefits

Patagonia takes pains to explain its products earth-friendliness and show customers the big picture. For example, in the mid-1990s, Patagonia began using organically-grown cotton exclusively. In addition to highlighting the organic* merchandise in product descriptions in catalogs, essays explained 2_____.

Other essays expanded the issue beyond individual products and processes. In a 1996 catalog essay, for example, CEO Yvon Chouinard explained the rationale behind the company's switch to organically-grown cotton, including the problems associated with producing conventional cotton,

the larger long-term benefits of investing in organically-grown products and the need to think about long-term sustainability issues when choosing products.

One might assume that explaining the benefits of organic cotton in catalogs was a strategic move, since the company had to justify the $2 to $10 premium per garment. But other essays, for instance, addressed environmental issues are not directly linked to company profit.

Broad environmental education teaches consumers that although thinking and buying greens is more expensive, 3_____.

Use a variety of media

Patagonia's advertising and company literature aim to educate. Instead of a catalog packed only with sales information, 4_____. Demonstrations in Patagonia's retail stores engage* customers with interactive displays of the earth's processes. Annual reports, pamphlets and other company literature explain new ideas in environmentalism. And Patagonia was one of the first companies to discuss sustainability in paid media.

Patagonia realizes that customers sometimes doubt corporate environmental claims. To avoid consumer backlash*, Patagonia publishes the rules of its internal environmental assessment.

This report reviews all office, production and merchandising activities and uncovers opportunities to cut waste and reduce energy. Readers can see how Patagonia tries to conduct business in a socially responsible manner, from choosing long-lasting efficient light bulbs to providing on-site childcare for employees' children. The grounds around the company's headquarters even feature edible landscaping – banana trees.

Through an environmental grants program, dubbed* Earth Tax, Patagonia pledges 1% of its sales or 10% of its pre-tax profit, whichever is greater, to small, local preservation and restoration efforts. Through* April 1997, Patagonia had contributed more than $8m to hundreds of such organizations.

Believing that grass roots* efforts do the most to raise community answers of local problems, Earth Tax program targets smaller grass roots organizations committed to issues such as biodiversity*, old-growth forests, environmentally preferable methods of resource extraction, alternative energy and water, social activism and environmental education. 5_____.

Empower consumers to take action

An annual Earth Tax Report invites customers to apply for grants for local projects. Participants are quick to apply and inform the company about environmental successes. One recent catalog featured a customer sporting an insulated Patagonia guide jacket as she rescued a calf born during a Colorado snow storm.

With powerful communication, meaningful corporate environmental progress and avenues for consumer activism 6_____.

*loyal: always supporting	*though (US): until (GB)
*organic: made without artificial chemicals	*grass roots: at the level of ordinary people
*a backlash: a strong reaction against smth.	*biodiversity: many different plants and animals existing in one area
*to dub: to give an «unofficial» name	

II. Read the text again. Choose the best sentence from the list below to complete gap.

a) Why organically-produced products are environmentally preferable.
b) Patagonia's catalog is more like *National Geographic.*
c) Many countries organize separate waste collections for glass, paper, metal and plastic, but many others don't.
d) Customers also buy into a commitment to environmental restoration.
e) It is no wonder that even skeptics become *Patagonia* customers and customers become «Patagonics».
f) The government will publish the results of the environmental study next month.
g) By funding more than 350 of these efforts each year, *Patagonia* helps raise community awareness nationwide.
h) Environmentalism is less taxing on the earth in the long run, and therefore, on individuals.

III. Choose the best answer to these questions according to the text.

1. What kind of customers does Patagonia have?
   a) established, b) promoted, c) loyal.
2. What do customers also buy into, when purchasing products from Patagonia?
   a) scientific research, b) charity, c) a commitment to environmental restoration.
3. What does Patagonia take pains to explain to customers?
   a) its product's earth friendliness, b) its product's quality,
   c) its product's reliability.
4. What does Patagonia's advertising and company literature aim to?
   a) entertain, b) educate, c) investigate.
5. How many grass roots efforts does Patagonia fund each year?
   a) 150, b) 350, c) 250.

IV. Match the nouns and verbs as they are used in the text.

1) address	a) business
2) doubt	b) awareness
3) publish	c) results
4) conduct	d) issues
5) raise	e) claims

V. Find words and expressions which mean the same as the following.

1. informed
2. do one best
3. product
4. ordinary
5. admit
6. clothes
7. demand
8. inner

9. evaluation
10. comprehension
11. suitable methods
12. all over the country

VI. Make an outline of the text in 7–10 sentences.

UNIT IV

I. Before reading the text below replace the words in brackets with an appropriate word from the box.

Policy	customers	impact
stores	program	issues
review	factory	estimate
goal	consumption	

A
Whilst our day-to-day running of the business does have an environmental 1_____ (the effect of one thing on another), the 2_____ (difficult questions or problems) with our products were, and still are, far greater.
B
Rather than just produce a 3_____ (an official course of action) quickly and stick a few green labels on our products, we started a fundamental 4_____ (examination/analysis) of the product range and the day-to-day running of the business.
C
Basic contradictions such as our 5_____ (objective) to sell more, so contributing towards 6_____ (the amount of products used or bought), however, still provide a philosophical challenge to any retailer.
D
There is considerable work to be done in the 7_____ (shops) and the way we communicate with our 8_____ (the people who buy products).
E
B&Q environmental 9_____ (a plan of action) started at the beginning of 1990.
F
A 10_____ (a place were goods are produced) in Bolivia is expanding rapidly to make wooden garden furniture. We 11_____ (calculate) that we buy products from 60 countries.

II. Now choose the most appropriate extract (A–F) to fill in each of the gaps in the text.

1_____ A growing number of customer inquiries and difficult media inquiries were made as that the environment was becoming a business issue. Action was catalyses when we were asked by a leading Sunday newspaper «*How much tropical timber does B&Q stock?*» Unable to answer the question, the obvious interpretation by the journalists was «*If you don't know, you don't care»*. We did care and we knew that many of our staff cared and most important of all, our customers cared. 2_____ .

This is our third environmental review. The first «*How Green is my Hammer?»* was published in August 1993 and the second «*How Green is my Front Door?*» was published in July 1995. This report covers progress to October 1998.

As the title suggests, all the reviews focus on the products we sell. Many of the issues were not obvious and were only realized after considerable investigation. For example, brass door handles were made in appalling working conditions in India, solvents or Volatile Organic Compounds (VOCs) in paint contributed to atmospheric pollution and the wood was connected to deforestation. 3_____ .

This report also tackles in far more detail than ever before sustainability and some of our ideas and thoughts on this concept. 4_____ . Whilst B&Q has stores in the United Kingdom, our fingerprint extends across the world. In the Philippines, people in coastal villages are collecting shells to make lampshades. In India, there are hundreds of looms in cottage units in which our doormats and hand knotted rug are made. 5_____ .
6_____ . In 1997 we launched our environmental program for stores – «*QUEST for stores*» – its success has been staggering.

We also recognize that our stores have a significant impact on the local communities both during their planning and construction, but also the subsequent running of the store. This includes addressing our role as a member of the local community and the issues associated with the design and impact of our stores.

III. Use the correct form of the words in the box to complete the sentences below.

suit	manufacture	responsible	profit
effective	consult	commit	sustain

1. This particular product is not suitable for use inside the home.
2. We have found that in many countries, suppliers do not understand the importance of using natural resources that you can _____ rather than deplete.
3. We are going to discuss the _____ of the new sales policy at the meeting this afternoon.
4. The best way to reduce the environmental impact of business operations in developing countries is by helping companies there to take greater _____ for managing the resources that they use.
5. When designing packaging, that can be recycled, it is sometimes necessary to use the services of _____ who can advice on the best ways to do this.
6. Although selling green products can help to protect the environment, it must also be _____ for the company.
7. Research shows that consumers would like to see more companies making a genuine _____ to protecting the environment.
8. _____ industries produce the highest levels of air pollution.

IV. Choose the best answer to these questions according to the text.

1. What kind of review is this one?
    a) research, b) musical, c) environmental.
2. How many reports have been published already by *B&Q*?
    a) five, b) three, c) two.
3. What progress does this report cover to?
    a) to August 1997,
    b) to July 1995,
    c) to October 1998.
4. What do all the reviews focus on?
    a) the products they sell,
    b) the successes they have,
    c) the failures they suffer.
5. When were many of the issues only realized by *B&Q*?
    a) after customer inquires,
    b) after considerable investigation,
    c) after media inquiries.
6. How many countries does *B&Q* buy products from?
    a) 20, b) 100, c) 60.

V. Find words and expressions which mean the same as the following.

1. while
2. problem
3. personnel
4. horrifying working conditions
5. serious research
6. small carpets

VI. Make an outline of the text in 7–10 sentences.

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