# Write the answers on the answer sheet provided.

## I. LISTENING COMPREHENSION (10 + 6 points)

### LISTENING 1 (10 points)

***You will hear a lecture on Monosodium Glutamate (MSG).***
***For questions 1-3 choose the correct answer A, B or C.***

**1.** The speaker says the main topic of the lecture is
- **A.** the history of Monosodium Glutamate.
- **B.** the way Monosodium Glutamate works.
- **C.** where Monosodium Glutamate is used.

**2.** In 1908, scientists in Japan
- **A.** made Monosodium Glutamate.
- **B.** begin using kombu.
- **C.** identified glutamate.

**3.** What change occurred in the manufacture of glutamate in 1956?
- **A.** It began to be manufactured on a large scale.
- **B.** The Japanese began extracting it from natural sources.
- **C.** It became much more expensive to produce.

***For questions 4-10 complete the notes with no more than 2 words for each answer.***

- MSG contains:
  - glutamate ( 78,2%)
  - sodium ( 12,2%)
  - **( 4) _____ ( 9,6%)**

- Glutamate is found in foods that contain protein such as **(5)** _____ and **(6)** _____ **.**
- MSG is used in foods in many different parts of the world.
- In 1908 Kikunae Ikeda discovered a **(7)** _____ **.**
- Our ability to detect glutamate makes sense because it is so **(8)** _____ naturally.
- John Prescott suggests that:
  - sweetness tells us that a food contains carbohydrates .
  - **(9)** _____ tells us that a food contains toxins.
  - sourness tells us that food is spoiled.
  - saltiness tells us that a food contains **(10)** _____ **.**

**LISTENING 2 (6 points)**

***You will hear two people, Lucy and Justine, discussing a recent television programme about journeys to remote places. For questions 1 - 6 decide whether the opinions are expressed by only one of the speakers, or whether the speakers agree.***

*Write:* ***L*** *for Lucy,*
***J*** *for Justine,*
***B*** *for Both, where they agree.*

**1.** It is important to speak the language of the country you are travelling in. _____
**2.** A traveller's survival should not depend on the helpfulness of local people. _____
**3.** Any group on an expedition to a remote place needs a leader. _____
**4.** A major disadvantage of travelling in the wild is the lack of fresh food available. _____
**5.** Hazards posed by wildlife tend to make travellers less adventurous. _____
**6.** Relationships will come under serious strain during a lengthy journey. _____

## II. READING COMPREHENSION (7 x 1 point = 7 points)

***Read the text and state whether the statements below agree with the views of the writer.***

| | | | |
|---|---|---|---|
| *Write:* | ***TRUE*** | ***T*** | *if the statement agrees with the views of the writer* |
| | ***FALSE*** | ***F*** | *if the statement contradicts the views of the writer* |
| | ***NOT GIVEN*** | ***NG*** | *if it is impossible to say what the writer thinks about this* |

# KEEP TAKING THE TABLETS

The history of aspirin is a product of a rollercoaster ride through time, of accidental discoveries, intuitive reasoning and intense corporate rivalry.

In the opening pages of *Aspirin: The Remarkable Story of a Wonder Drug,* Diarmuid Jeffreys describes this little white pill as "one of the most amazing creations in medical history, a drug so astonishingly versatile that it can relieve headache, ease your aching limbs, lower your temperature and treat some of the deadliest human diseases".

Its properties have been known for thousands of years. Ancient Egyptian physicians used extracts from the willow tree as an analgesic, or pain killer. Centuries later the Greek physician Hippocrates recommended the bark of the willow tree as a remedy for the pains of childbirth and as a fever reducer. But it wasn't until the eighteenth and nineteenth centuries that salicylates – the chemical found in the willow tree – became the subject of serious scientific investigation. The race was on to identify the active ingredient and to replicate it synthetically. At the end of the nineteenth century a German company, Friedrich Bayer & Co, succeeded in creating a relatively safe and very effective chemical compound, acetylsalicylic acid, which was renamed aspirin.

The late nineteenth century was a fertile period for experimentation, partly because of the hunger among scientists to answer some of the great scientific questions, but also because those questions were within their means to answer. One scientist in a laboratory with some chemicals and a test tube could make significant breakthroughs – whereas today, in order to map the human genome for instance, one needs "an army of researchers, a bank of computers and millions and millions of dollars".

But an understanding of the nature of science and scientific inquiry is not enough on its own to explain how society innovates. In the nineteenth century, scientific advance was closely linked to the industrial revolution. This was a period when people frequently had the means, motive and determination to take an idea and turn it into reality. In the case of aspirin that happened piecemeal – a series of minor, often unrelated advances, fertilised by the century's broader economic, medical and scientific developments, that led to one big final breakthrough.

The link between big money and pharmaceutical innovation is also a significant one. Aspirin's continued shelf life was ensured because for the first 70 years of its life, huge amounts of money were put into promoting it as an ordinary everyday analgesic. In the 1970s other analgesics, such as ibuprofen and paracetamol, were entering the market, and the pharmaceutical companies then focused on publicising these new drugs. But just at the same time, discoveries were made regarding the beneficial role of aspirin in preventing heart attacks, strokes and other afflictions. Had it not been for these findings, this pharmaceutical marvel may well have disappeared.

So the relationship between big money and drugs is an odd one. Commercial markets are necessary for developing new products and ensuring that they remain around long enough for scientists to carry out research on them. But the commercial markets are just as likely to kill off certain products when something more attractive comes along. In the case of aspirin, a potential "wonder drug" was around for over 70 years without anybody investigating the way in which it achieved its effects, because they were making more than enough money out of it as it was. If ibuprofen or paracetamol had entered the market just a decade earlier, aspirin might then not be here today. It would be just another forgotten drug that people hadn't bothered to explore.

None of the recent discoveries of aspirin's benefits were made by the big pharmaceutical companies; they were made by scientists working in the public sector. "The reason for that is very simple and straightforward," Jeffreys says in his book. "Drug companies will only pursue research that is going to deliver financial benefits. There's no profit in aspirin any more. It is incredibly inexpensive with tiny profit margins and it has no patent anymore, so anyone can produce it." In fact, there's almost a disincentive for drug companies to further boost the drug, he argues, as it could possibly put them out of business by stopping them from selling their more expensive brands.

So what is the solution to a lack of commercial interest in further exploring the therapeutic benefits of aspirin? More public money going into clinical trials, says Jeffreys. "If I were the Department of Health, I would say " this is a very inexpensive drug. There may be a lot of other things we could do with it." We should put a lot more money into trying to find out."

Jeffreys' book – which not only tells the tale of a "wonder drug" but also explores the nature of innovation and the role of big business, public money and regulation – reminds us why such research is so important.

**1.** For nineteenth-century scientists, small-scale research was enough to make important discoveries.

**2.** The nineteenth-century industrial revolution caused a change in the focus of scientific research.

**3.** The development of aspirin in the nineteenth century followed a structured pattern of development.

**4.** In the 1970s sales of new analgesic drugs overtook sales of aspirin.

**5.** Commercial companies may have both good and bad effects on the availability of pharmaceutical products.

**6.** The reason why major drug companies did not find out about new uses of aspirin is that their profit margin would be too low.

**7.** There should be commercial support for further research into the possible applications of the drug.

## III. GENERAL ENGLISH VOCABULARY AND GRAMMAR (44 x 1 point = 44 points)

***A. Replace the words in bold in each of the sentences below – choosing "A", "B", "C" or "D" as appropriate (7 x 1 point = 7 points):***

**1.** Stressful situations that **COME** almost every day in life seem to be unavoidable.
**2.** However, we can do little sometimes to **KEEP AWAY** a misfortune or an unpleasant occurrence.
**3.** Can you **IMAGINE** in your mind an hour spent in a traffic jam, say, this morning?
**4.** To **RESIST** the stressful moment you can do a crossword puzzle or compose a menu for Sunday dinner.
**5.** In fact, whatever way you **ADDRESS** to the annoying situation, you can exert no impact on it.
**6.** Nevertheless, your reaction might considerably influence your **STATE** for the rest of the day.
**7.** The inability to confront a stressful occurrence like that with a deal of composure and sensibility adds much more strain to your life and in this way puts your well-being in **DANGER.**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **1** | **A** | devise | **B** | create | **C** | originate | **D** | emerge |
| **2** | **A** | ward off | **B** | boil down | **C** | stamp out | **D** | dawn on |
| **3** | **A** | envision | **B** | observe | **C** | picture | **D** | conclude |
| **4** | **A** | withhold | **B** | withdraw | **C** | wither | **D** | withstand |
| **5** | **A** | confront | **B** | deal | **C** | respond | **D** | challenge |
| **6** | **A** | disposition | **B** | disposal | **C** | disposure | **D** | dispossession |
| **7** | **A** | risk | **B** | weakness | **C** | insecurity | **D** | jeopardy |

***B. Take the key word – in brackets – at the end of each sentence below, and change it into a suitable variant to complete the given sentence ( –ing & -ed ending are not accepted) (10 x 1 point = 10 points):***

**1.** ....., he wasn't badly hurt in the accident. **(MERCY)**
**2.** The waiter was most ..... about the delay in bringing the meal. **(APOLOGISE)**
**3.** The new chef prepared a really ..... fish dish. **(IMAGINATION)**
**4.** In good restaurants the waiters are ..... and provide immediate service. **(ATTEND)**
**5.** The strike was reported ..... in the press. **(EXTEND)**
**6.** The university has an ..... of five hundred students a year. **(TAKE)**
**7.** Sport is a good ..... for the strains of studying. **(LET)**
**8.** People say that crimes of violence were ..... rare until a few years ago. **(COMPARE)**
**9.** "..... will be prosecuted" – says the notice on the fences. **(PASS)**
**10.** It is a very academic, ……. book. **(SCHOOL)**

***C. Fill in the blanks with one of the idioms. Note there are 3 extra idioms you do not need to use. Write the chosen <u>letters</u> on the answer sheet provided (7 x 1 point = 7 points):***

| | | | |
|---|---|---|---|
| **A.** | **MAKING A DEAL WITH** | **F.** | **SMELL A RAT** |
| **B.** | **UNDER OUR NOSES** | **G.** | **AT A LOOSE END** |
| **C.** | **DOWN THE DRAIN** | **H.** | **HEAD AND SHOULDERS ABOVE** |
| **D.** | **OVER THE MOON** | **I.** | **GIVE AND TAKE** |
| **E.** | **ALL FINGERS AND THUMBS** | **J.** | **OUT OF THE BLUE** |

1. She is …..... her colleagues, which is why she is soon to be made a company director.
2. They could come to an agreement only if there was a bit more …..... .
3. That's the second bad film we've seen in two weeks. Another 5 $ …..... .
4. The news of the wedding came quite …..... . Everyone thought they had split up.
5. That's the third glass she's broken this morning. She is …..... .
6. The employee was stealing company property right …..... .
7. I'm very suspicious about his making that offer – in fact, I …..... .

***D. Fill in the missing words. The number of letters in each word corresponds to the number of dashes provided. Some of the missing letters have been given (5 x 1 point = 5 points):***

1. It is the human factor that _ _ _ t _ _ _ _ _ _ _ to the absolute majority of road accidents which involve the tremendous toll of fatalities each year.
2. Speeding motorists are n _ _ _ _ _ _ _ _ for failing to give way at junctions or being unable to accurately _ _ _ _ m _ _ _ distance while overtaking the “snailpacers” ahead.
3. Drinkers who settle behind the wheel after one glass or two may be _ _ n _ _ _ _ the risk of causing a tragedy through their impaired perception, which is not so rare a _ _ _ e .

***E. Multiple Choice. Fill in the blanks choosing the correct word (10 x 1 point = 10 points):***

1. The first thing for all of you to remember is that …..... your duties may result in an instant dismissal.
2. Several soldiers of the squad were taken …..... by the enemy forces.
3. The student was …..... of understanding the theory even after professor's profound explanation.
4. My older brother is extremely fond of astronomy, he seems to …..... a lot of pleasure in observing the stars.
5. On entering the nursery I stumbled on the wooden blocks …..... all over the carpet.
6. The schoolboy's excuse wasn't …..... at all. Nobody in the classroom believed in the story he made out.
7. Nobody took any …..... of the warning and they went swimming in the contaminated water.
8. It was mindless of you to …..... Sam in the face. You should never have done it if you expect him to love you.
9. Martin has confirmed his strong …..... to charity actions by donating a tremendous sum of money again.
10. Mr Tanner did his best to fix the faulty oven, but his …..... at repairing electrical devices wasn't good enough to succeed.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **1** | **A** | escaping | **B** | neglecting | **C** | resisting | **D** | missing |
| **2** | **A** | capture | **B** | hostage | **C** | kidnap | **D** | torture |
| **3** | **A** | incompetent | **B** | incapable | **C** | helpless | **D** | unsuccessful |
| **4** | **A** | take | **B** | gain | **C** | seize | **D** | receive |
| **5** | **A** | plunged | **B** | scattered | **C** | settled | **D** | tossed |
| **6** | **A** | credential | **B** | credible | **C** | creditable | **D** | credulous |
| **7** | **A** | information | **B** | attention | **C** | notice | **D** | sight |
| **8** | **A** | slam | **B** | clap | **C** | slap | **D** | clasp |
| **9** | **A** | compliance | **B** | promise | **C** | assignment | **D** | commitment |
| **10** | **A** | service | **B** | skill | **C** | technique | **D** | craft |

***F. Fill in the blanks with the correct preposition from the table below. Note: there are three extra ones you do not need to use (5 x 1 point = 5 points):***

| **of** | **on** | **for** | **with** | **at** | **off** | **in** | **by** |
|---|---|---|---|---|---|---|---|

**1.** The computer chooses data …..... random, so that there is no bias or discrimination involved.
**2.** …..... all accounts she was a well-behaved little girl.
**3.** In our hi-tech world there are many things that we take …..... granted.
**4.** When Tom is …..... duty he does a lot of sport to relax.
**5.** She accepted the prize …..... behalf of her father, who was abroad.

## IV. <u>CULTURE. Choose the correct answer (6 x 1 point = 6 points):</u>

**1.** Australia – the British colony (19th century):
**A.** was first used as a prison – criminals were sent from Britain as a severe punishment.
**B.** received large numbers of Eastern European Jews (about 100.000) who escaped from religious persecution in Russia and Poland.
**C.** was Britain's oldest and cheapest source of energy (coal).
**D.** was transformed from a mainly agricultural society into an industrial one.

**2.** If someone in Great Britain says "I'm five feet, two inches", how tall is she in metres?
**A.** 1.72
**B.** 1.57
**C.** 1.68
**D.** 1.95

**3.** In 1926 Marks & Spencer had 126 branches throughout Britain and had become a public limited company. Michael Marks was:

**A.** an American rebel who overthrew the British government.
**B.** a British businessman who gave large amounts of money to help charities, museums, etc.
**C.** a Russian refugee.
**D.** a German economist.

**4.** Brunch is:

**A.** a building in a very poor condition.
**B.** a meal that you eat in the late morning.
**C.** meat from farm birds such as chickens, turkeys, and ducks.
**D.** someone who is eager to be involved in risky or dishonest activities, especially in order to make money.

**5.** Mount Rushmore National Memorial is:

**A.** the world's largest sculpture depicting Presidents George Washington, Thomas Jefferson, Abraham Lincoln and Theodore Roosevelt.
**B.** John Muir's spiritual home in California in the Sierra Nevada mountains. He turned the poorly managed state into a national park.
**C.** the honeymoon capital of the world which attracts nearly 50,000 newlyweds every year as well as 10 million other tourists from around the world.
**D.** the first recognized spectacular geyser in Yellowstone National Park.

**6.** Linus Pauling

**A.** revolutionized the study of molecular chemistry. He won the Nobel Prize in 1954.
**B.** created the most successful comic strip in history called "Peanuts". It has inspired TV specials, books, dolls, posters, songs, and even a musical.
**C.** introduced a polio vaccine in 1955 which has practically eradicated polio throughout the world.
**D.** wrote "Pollyanna" – the story of the "glad" girl, first published in 1913. It was an immediate heart-warmer. The name "Pollyanna" has become synonymous with a kind of determined optimism.

## V. SCIENTIFIC ENGLISH & TECHNICAL TASKS (15 x 1 point = 15 points)

### *A. Read through the following sentences and fill in the missing words. The number of blanks corresponds to the number of letters (5 x 1 point = 5 points):*

**1.** A cable which can c _ _ _ _ _ _ electricity with little energy loss is called a superconductor.
**2.** Roman roads had a _ _ _ _ _ _ e of flat stones under which were two layers, an upper one of softer material and a lower one of stone.
**3.** We know that the _ _ _ p_ _ _ _ _ _ of materials are affected by the arrangement of the atoms in them.
**4.** Hydrogen and oxygen combine chemically to form the _ o _ _ _ _ _ _ of water.
**5.** When exposed to ultraviolet _ _ _ _ _ _ i _ _ , some substances emit electrons.

***B. Choose the correct answer (5 x  point = 5 points):***

1. We measure _____ in cubic inches or centimetres.
   **A.** density
   **B.** volume
   **C.** adhesion
2. Moisture held in the air is in the form of _____ .
   **A.** water vapour.
   **B.** raindrops.
   **C.** ice crystals.
3. An object that is to travel into space must escape _____ .
   **A.** the state of weightlessness.
   **B.** orbital velocity.
   **C.** the earth's gravity.
4. A _____ is a device for generating, amplifying and concentrating light waves into an intense beam in one specific direction.
   **A.** laser
   **B.** maser
   **C.** radar
5. _____ is a device that makes a motorbike go faster. You activate it by twisting the handle on the handlebars.
   **A.** A sensor
   **B.** A Lidar scanner
   **C.** An accelerator

***C. State whether the sentence is true  (T) or false (F) (5 x 1 point = 5 points):***

1. As atomic energy is developed in a reactor in the form of heat, one can obtain both heat and power.
2. Gas is one of the by-products of the industry concerned with the refining of oil.
3. Tin doesn't have a resistance to corrosion by air or water.
4. The theory of relativity was formulated at the beginning of this century.
5. A catalyst is a substance which alters the speed of a reaction without itself being consumed in the reaction.