

I. Đề 1

1. Section 1 (Questions 1 - 14)

Read the text below and answer Questions 1–8.

EMERGENCY PROCEDURES

Revised July 2011

This applies to all persons on the school campus

*In cases of emergency (e.g. fire), find the nearest teacher who will:
send a messenger at full speed to the Office OR inform the Office via phone
ext. 99.*

PROCEDURE FOR EVACUATION

1. Warning of an emergency evacuation will be marked by a number of short bell rings. (In the event of a power failure, this may be a hand-held bell or siren.)
2. All class work will cease immediately.
3. Students will leave their bags, books and other possessions where they are.
4. Teachers will take the class rolls.
5. Classes will vacate the premises using the nearest staircase. If these stairs are inaccessible, use the nearest alternative staircase. Do not use the lifts. Do not run.
6. Each class, under the teacher's supervision, will move in a brisk, orderly fashion to the paved quadrangle area adjacent to the car park.
7. All support staff will do the same.

8. The Marshalling Supervisor, Ms Randall, will be wearing a red cap and she will be waiting there with the master timetable and staff list in her possession.
9. Students assemble in the quad with their teacher at the time of evacuation. The teacher will do a head count and check the roll.
10. Each teacher sends a student to the Supervisor to report whether all students have been accounted for. After checking, students will sit down (in the event of rain or wet pavement they may remain standing).
11. The Supervisor will inform the Office when all staff and students have been accounted for.
12. All students, teaching staff and support personnel remain in the evacuation area until the All Clear signal is given.
13. The All Clear will be a long bell ring or three blasts on the siren.
14. Students will return to class in an orderly manner under teacher guidance.
15. In the event of an emergency occurring during lunch or breaks, students are to assemble in their home-room groups in the quad and await their home-room teacher.

Questions 1 - 8

Complete the sentences below.

Choose **NO MORE THAN THREE WORDS** from the text for each answer.

Write your answers in boxes 1–8 on your answer sheet.

1. In an emergency, a teacher will either phone the office or
2. The signal for evacuation will normally be several
3. If possible, students should leave the building by the
4. They then walk quickly to the
5. will join the teachers and students in the quad.
6. Each class teacher will count up his or her students and mark
7. After the, everyone may return to class.
8. If there is an emergency at lunchtime, students gather in the quad in and wait for their teacher.

Read the texts below and answer Questions 9–14.

Community Education

SHORT COURSES: BUSINESS

Business Basics

Gain foundation knowledge for employment in an accounts position with bookkeeping and business basics through to intermediate level; suitable for anyone requiring knowledge from the ground up.

Code B/ED011

16th or 24th April 9am–4pm

Cost \$420

Bookkeeping

This course will provide students with a comprehensive understanding of bookkeeping and a great deal of hands-on experience.

Code B/ED020

19th April 9am–2.30pm (one session only so advance bookings essential)

Cost \$250

New Enterprise Module

Understand company structures, tax rates, deductions, employer obligations, profit and loss statements, GST and budgeting for tax.

Code B/ED030

15th or 27th May 6pm–9pm

Cost \$105

Social Networking – the Latest Marketing Tool

This broad overview gives you the opportunity to analyse what web technologies are available and how they can benefit your organisation.

Code B/ED033

1st or 8th or 15th June 6pm–9pm

Cost \$95

Communication

Take the fear out of talking to large gatherings of people. Gain the public-speaking experience that will empower you with better communication skills and confidence.

Code B/ED401

12th or 13th or 14th July 6pm–9pm

Cost \$90

Questions 9–14

Do the following statements agree with the information given in the text?

In boxes 9–14 on your answer sheet, write:

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

9. Business Basics is appropriate for beginners.
10. Bookkeeping has no practical component.
11. Bookkeeping is intended for advanced students only.
12. The New Enterprise Module can help your business become more profitable.
13. Social Networking focuses on a specific website to help your business succeed.
14. The Communication class involves speaking in front of an audience.

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của IELTS TUTOR*

2. Section 2 (Questions 15 - 28)

Questions 15–21

The text on the next page has seven sections, A–G.

Choose the correct heading for each section from the list of headings below.

Write the correct number, i–x, in boxes 15–21 on your answer sheet.

List of Headings

- i. How can reflection problems be avoided?
- ii. How long should I work without a break?
- iii. What if I experience any problems?
- iv. When is the best time to do filing chores?
- v. What makes a good seat?
- vi. What are the common health problems?
- vii. What is the best kind of lighting to have?
- viii. What are the roles of management and workers?
- ix. Why does a VDU create eye fatigue?
- x. Where should I place the documents?

15. Section A

16. Section B

17. Section C

18. Section D

19. Section E

20. Section F

21. Section G

BENEFICIAL WORK PRACTICES FOR THE KEYBOARD OPERATOR

A. Sensible work practices are an important factor in the prevention of muscular fatigue; discomfort or pain in the arms, neck, hands or back; or eye strain which can be associated with constant or regular work at a keyboard and visual display unit (VDU).

B. It is vital that the employer pays attention to the physical setting such as workplace design, the office environment, and placement of monitors as well as the organisation of the work and individual work habits. Operators must be able to recognise work-related health problems and be given the opportunity to participate in the management of these. Operators should take note of and follow the preventive measures outlined below.

C. The typist must be comfortably accommodated in a chair that is adjustable for height with a back rest that is also easily adjustable both for angle and height. The back rest and sitting ledge (with a curved edge) should preferably be cloth-covered to avoid excessive perspiration.

D. When the keyboard operator is working from a paper file or manuscript, it should be at the same distance from the eyes as the screen. The most convenient position can be found by using some sort of holder. Individual arrangement will vary according to whether the operator spends more time looking at the VDU or the paper – whichever the eyes are focused on for the majority of time should be put directly in front of the operator.

E. While keying, it is advisable to have frequent but short pauses of around thirty to sixty seconds to proofread. When doing this, relax your hands. After you have been keying for sixty minutes, you should have a ten minute change

of activity. During this spell it is important that you do not remain seated but stand up or walk around. This period could be profitably used to do filing or collect and deliver documents.

F. Generally, the best position for a VDU is at right angles to the window. If this is not possible then glare from the window can be controlled by blinds, curtains or movable screens. Keep the face of the VDU vertical to avoid glare from overhead lighting.

G. Unsatisfactory work practices or working conditions may result in aches or pain. Symptoms should be reported to your supervisor early on so that the cause of the trouble can be corrected and the operator should seek medical attention.

Questions 22 - 28

Read the text below and answer Questions 22–28.

Workplace dismissals

Before the dismissal

If an employer wants to dismiss an employee, there is a process to be followed. Instances of minor misconduct and poor performance must first be addressed through some preliminary steps.

Firstly, you should be given an improvement note. This will explain the problem, outline any necessary changes and offer some assistance in correcting the situation. Then, if your employer does not think your performance has improved, you may be given a written warning. The last step is called a final written warning which will inform you that you will be dismissed unless there are improvements in performance. If there is no improvement, your employer can begin the dismissal procedure.

The dismissal procedure begins with a letter from the employer setting out the charges made against the employee. The employee will be invited to a meeting to discuss these accusations. If the employee denies the charges, he is given the opportunity to appear at a formal appeal hearing in front of a different manager. After this, a decision is made as to whether the employee will be let go or not.

Dismissals

Of the various types of dismissal, a fair dismissal is the best kind if an employer wants an employee out of the workplace. A fair dismissal is legally and contractually strong and it means all the necessary procedures have been correctly followed. In cases where an employee's misconduct has been very serious, however, an employer may not have to follow all of these procedures.

If the employer can prove that the employee's behaviour was illegal, dangerous or severely wrong, the employee can be dismissed immediately: a procedure known as summary dismissal.

Sometimes a dismissal is not considered to have taken place fairly. One of these types is wrongful dismissal and involves a breach of contract by the employer. This could involve dismissing an employee without notice or without following proper disciplinary and dismissal procedures. Another type, unfair dismissal, is when an employee is sacked without good cause.

There is another kind of dismissal, known as constructive dismissal, which is slightly peculiar because the employee is not actually openly dismissed by the employer. In this case the employee is forced into resigning by an employer who tries to make significant changes to the original contract. This could mean an employee might have to work night shifts after originally signing on for day work, or he could be made to work in dangerous conditions.

Questions 22 and 23

Complete the sentences below.

Choose NO MORE THAN THREE WORDS from the text for each answer.

Write your answers in boxes 22–23 on your answer sheet.

22. If an employee receives a , this means he will lose his job if his work does not get better.

23. If an employee does not accept the reasons for his dismissal, a can be arranged.

Questions 24–28

Look at the following descriptions (Questions 24–28) and the list of terms in the box below. Match each description with the correct term A–E. Write the appropriate letter A–E in boxes 24–28 on your answer sheet.

- 24.** An employee is asked to leave work straight away because he has done something really bad.
- 25.** An employee is pressured to leave his job unless he accepts conditions that are very different from those agreed to in the beginning.
- 26.** An employer gets rid of an employee without keeping to conditions in the contract.
- 27.** The reason for an employee's dismissal is not considered good enough.
- 28.** The reasons for an employee's dismissal are acceptable by law and the terms of the employment contract.

- A. Fair dismissal
- B. Summary dismissal
- C. Unfair dismissal
- D. Wrongful dismissal
- E. Constructive dismissal

3. Section 3 (Questions 29 - 40)

Read the text below and answer Questions 29–40.

CALISTHENICS

The world's oldest form of resistance training

A. From the very first caveman to scale a tree or hang from a cliff face, to the mighty armies of the Greco-Roman empires and the gymnasiums of modern American high schools, calisthenics has endured and thrived because of its simplicity and utility. Unlike strength training which involves weights, machines or resistance bands, calisthenics uses only the body's own weight for physical development.

B. Calisthenics enters the historical record at around 480 B.C., with Herodotus' account of the Battle of Thermopylae. Herodotus reported that, prior to the battle, the god-king Xerxes sent a scout party to spy on his Spartan enemies. The scouts informed Xerxes that the Spartans, under the leadership of King Leonidas, were practicing some kind of bizarre, synchronised movements akin to a tribal dance. Xerxes was greatly amused. His own army was comprised of over 120,000 men, while the Spartans had just 300. Leonidas was informed that he must retreat or face annihilation. The Spartans did not retreat, however, and in the ensuing battle they managed to hold Xerxes' enormous army at bay for some time until reinforcements arrived. It turns out their tribal dance was not a superstitious ritual but a form of calisthenics by which they were building aweinspiring physical strength and endurance.

C. The Greeks took calisthenics seriously not only as a form of military discipline and strength, but also as an artistic expression of movement and an

aesthetically ideal physique. Indeed, the term calisthenics itself is derived from the Greek words for beauty and strength. We know from historical records and images from pottery, mosaics and sculptures of the period that the ancient Olympians took calisthenics training seriously.

They were greatly admired – and still are, today – for their combination of athleticism and physical beauty. You may have heard a friend whimsically sigh and mention that someone ‘has the body of a Greek god’. This expression has travelled through centuries and continents, and the source of this envy and admiration is the calisthenics method.

D. Calisthenics experienced its second golden age in the 1800s. This century saw the birth of gymnastics, an organised sport that uses a range of bars, rings, vaulting horses and balancing beams to display physical prowess. This period is also when the phenomena of strongmen developed. These were people of astounding physical strength and development who forged nomadic careers by demonstrating outlandish feats of strength to stunned populations. Most of these men trained using hand balancing and horizontal bars, as modern weight machines had not yet been invented.

E. In the 1950s, Angelo Siciliano – who went by the stage name Charles Atlas – was crowned “The World’s Most Perfectly Developed Man”. Atlas’s own approach stemmed from traditional calisthenics, and through a series of mail order comic books he taught these methods to hundreds of thousands of children and young adults through the 1960s and 1970s. But Atlas was the last of a dying breed. The tides were turning, fitness methods were drifting away from calisthenics, and no widely-regarded proponent of the method would ever succeed him.

F. In the 1960s and 1970s calisthenics and the goal of functional strength combined with physical beauty was replaced by an emphasis on huge

muscles at any cost. This became the sport of body building. Although body building's pioneers were drawn from the calisthenics tradition, the sole goal soon became an increase in muscle size. Body building icons, people such as Arnold Schwarzenegger and Sergio Oliva, were called mass monsters because of their imposing physiques. Physical development of this nature was only attainable through the use of anabolic steroids, synthetic hormones which boosted muscle development while harming overall health. These body builders also relied on free weights and machines, which allowed them to target and bloat the size of individual muscles rather than develop a naturally proportioned body. Calisthenics, with its emphasis on physical beauty and a balance in proportions, had little to offer the mass monsters.

G. In this “bigger is better” climate, calisthenics was relegated to groups perceived to be vulnerable, such as women, people recuperating from injuries and school students. Although some of the strongest and most physically developed human beings ever to have lived acquired their abilities through the use of sophisticated calisthenics, a great deal of this knowledge was discarded and the method was reduced to nothing more than an easily accessible and readily available activity. Those who mastered the rudimentary skills of calisthenics could expect to graduate to weight training rather than advanced calisthenics.

H. In recent years, however, fitness trends have been shifting back toward the use of calisthenics. Bodybuilding approaches that promote excessive muscle development frequently lead to joint pain, injuries, unbalanced physiques and weak cardiovascular health. As a result, many of the newest and most popular gyms and programmes emphasise calisthenics-based methods instead. Modern practices often combine elements from a number of related traditions such as yoga, Pilates, kettle-ball training, gymnastics and traditional

Greco-Roman calisthenics. Many people are keen to recover the original Greek vision of physical beauty and strength and harmony of the mind-body connection.

Questions 29 - 35

The text has eight paragraphs, A–H.

Which paragraph contains the following information?

Write the correct letter, A–H, in boxes, 29–35 on your answer sheet.

- 29.** the origin of the word ‘calisthenics’
- 30.** the last popular supporter of calisthenics
- 31.** the first use of calisthenics as a training method
- 32.** a multidisciplinary approach to all-round health and strength
- 33.** reasons for the survival of calisthenics throughout the ages
- 34.** the use of a medical substance to increase muscle mass and strength
- 35.** a reference to travelling showmen who displayed their strength for audiences

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Questions 36 - 40

Complete the summary below.

Choose **NO MORE THAN TWO WORDS** from the text for each answer.

Write your answers in boxes 36–40 on your answer sheet.

During the sixties and seventies, attaining huge muscles became more important than **36** or having an attractive-looking body. The first people to take up this new sport of body building had a background in calisthenics but the most famous practitioners became known as **37** on account of the impressive size of their muscles. Drugs and mechanical devices were used to develop individual muscles to a monstrous size. Calisthenics then became the domain of 'weaker' people: females, children and those recovering from **38** Much of the advanced knowledge about calisthenics was lost and the method was subsequently downgraded to the status of a simple, userfriendly activity. Once a person became skilled at this, he would progress to **39** Currently a revival of calisthenics is under way as extreme muscle building can harm the body leaving it sore, out of balance, and in poor **40**

II. Đề 2

1. Section 1 (Questions 1 - 13)

Read the text below and answer Questions 1–9.

Sunset Tours

BOOKINGS

A deposit of \$150 each is payable on booking and the balance is payable 30 days prior to tour departure. Feel free to contact us for further information:

Office Hours: 8 am-4 pm Monday—Friday

Phone 5500 0881

Fax 5501 0881

Email: info@sunsettours.co

CONDITIONS

The cost is subject to a minimum of 25 passengers travelling and we reserve the right to cancel if this number is not reached. Should the tour be cancelled, you are entitled to a full refund.

NB: The itinerary is given as a guide only and is subject to alteration if weather conditions are unfavourable or in any other unforeseen circumstances.

LUGGAGE

Each passenger is entitled to bring a cabin bag and one item of checked luggage no heavier than 20 kg as per industry requirements. Couples travelling together are requested to use individual suitcases. Your suitcase

should be of a size and weight you yourself can manage as tour leaders may not be readily available to handle your luggage.

CANCELLATION & REFUNDS

It is obligatory that you have a travel insurance policy to cover sudden illness or accident. Even so an administration fee is retained for notice of more than 30 days prior to departure but, should cancellation occur through unforeseen circumstances not covered by travel insurance, 10% of the fare is retained for 15-30 days' notice, 20% for 4-14 days and 50% is held for less than 4 days' notice. There will be no refund for notice of one day or on the day of departure.

RESPONSIBILITY

Although every endeavour is made by Sunset Tours to ensure your holiday goes according to plan, we act purely as an agent for the various accommodation and other services provided.

Sunset Tours shall not be liable for any accident, injury, delay, irregularity, loss or damage caused by or arising out of the provision of or failure to provide any such service.

Questions 1–9

Do the following statements agree with the information given in the passage?

In boxes 1-9 on your answer sheet, write:

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

1. The full cost of the tour must be paid at the time the booking is made.
2. If there are not enough bookings, the tour will not go ahead.

3. If travel plans are disrupted because of unexpected problems, tourists can get their money back.
4. There is no weight limit on the traveller's cabin luggage.
5. The tour leader is not allowed to help passengers with their baggage.
6. Tourists must insure against sickness and injury.
7. An insured traveller who cancels due to illness more than a month before departure gets a full refund.
8. Sunset Tours only give a partial refund to passengers who cancel the day before the tour leaves.
9. Sunset Tours are not responsible for the state of hotel rooms.

Read the passage below and answer Questions 10-13.

Easy Listening

Broadcasting Association

26/7/11

You Are Invited...

Dear Listener

We wish to express our sincere thanks for your support during our last successful fund-raising endeavour. Your annual donation makes it possible for us to improve the station in every way for your interest and pleasure.

We would like to extend to you an invitation to join us at the station on Wednesday, 16th August at 3.00 pm for afternoon tea and to discuss station programming. Your input will be a great help to us. It will enable us to continue programming to suit your requirements. Together we will be discussing future ideas for 5ZBG and whether frequent news broadcasts should be included in

our agenda. There has also been a proposal to make the mainstay of our programming a talkback format. Any changes to programming would have to be finalised by September 1st.

We hope you can join us and we look forward to sharing time with you. If you are able to join us, please be kind enough to phone, and let us know. If you are unable to attend on this day, please phone and we will arrange a suitable date for you.

Your sincerely

Tobias Rank

Programming Coordinator

RSVP by 5/8/11

Questions 10-13

Choose the correct letter, A, B, C or D.

Write your answers in boxes 10-13 on your answer sheet.

10. 5ZBG primarily

- A. relays news broadcasts.
- B. focuses on talkback shows.
- C. plays listeners requests.
- D. plays soothing music.

11. The listener is being thanked for

- A. listening to 5ZBG.
- B. giving money to the station.
- C. attending afternoon tea.
- D. providing his input.

12. The listener is being invited to an event where he will

- A. participate in a programme.
- B. raise money.
- C. have refreshments.
- D. talk about improvements.

13. The listener should reply to the letter by

- A. August 5th.
- B. July 26th.
- C. August 16th.
- D. September 1st.

2. Section 2 (Questions 14 - 28)

Read the text below and answer Questions 14-22.

Employees and Contractors

An employee is someone who performs work under a contract of employment. Identifying who is, or is not, an employee has become an increasingly disputed area, with a number of different factors to be considered. Non-employees may be 'independent contractors' or 'sub-contractors' and are employed under a contract for services or even as agents representing a client business. The legal consequences of being an independent contractor are significantly different to those for employees. Only an 'employee' can be covered by an award or make a workplace agreement. However, some cleaners, outworkers and some drivers of public passenger vehicles who might ordinarily be considered independent contractors are deemed to be

employees under the Fair Work Act.

1, award: something (e.g. a pay rise) given as a result of arbitration (process of resolving a dispute e.g. between employers and a trade union)

The rights and obligations of employees are very different to those who are self-employed. To distinguish between employees and independent contractors, the courts take into account a number of factors to determine what the real nature of a particular work relationship is. These factors may include:

Control over work — generally an employee works as directed by the employer whereas a contractor has a greater say in how the work is to be done.

Payment — employees are usually paid on the basis of an hourly rate or a salary. Contractors are more often paid for a required outcome, with less regard for time.

Work injury — contractors are responsible to insure themselves against injury but employees are not.

Risk — employees generally do not bear in a direct way the risk of financial loss incurred by the business for which they work. Contractors have a chance of profit, and also the risk of loss.

Sub-contracting — an employee cannot assign or delegate the work to others whereas a contractor is typically permitted to do so.

Tools and equipment — contractors may supply special equipment or tools to do the job.

Income tax and superannuation — employers usually pay these for their employees whereas contractors make their own arrangements.

Questions 14-22

Classify the following as

- A. contractors
- B. employees
- C. employers

Write the correct letter A, B or C in boxes 14-22 on your answer sheet
NB You may use any letter more than once.

People who

- 14. work for wages or salary rather than profit
- 15. pay tax on behalf of others
- 16. have less responsibility for the way in which a job is carried out
- 17. do not provide their own work gear
- 18. pay by the hour
- 19. do not have the freedom to pay other people to do their job for them
- 20. do not benefit from belonging to a trade union
- 21. are paid for the end result rather than hours recorded
- 22. are required to sign an employment contract

Read the passage below and answer Questions 23-28.

Paid Parental Leave

If you are a working parent expecting a child after July 31st, the information below about Paid Parental Leave concerns you.

From 1st August, the first national Paid Parental Leave scheme will start. It's a new entitlement for working parents, funded by the government.

Taking time away from work for a new baby is a common part of working life. Paid Parental Leave is designed to help parents spend time with a new baby and also to help employers retain skilled staff.

Eligible working parents of children born or adopted on or after 1st August may get 18 weeks government-funded pay at the National Minimum Wage to help them care for a new baby.

Full-time, part-time, casual, seasonal, contract and self-employed workers may be eligible. You must have worked at least 330 hours (just over one day a week) for 10 of the 13 months before your new baby arrives. You can have up to an 8 week unpaid break between two working days and still be eligible. You can earn up to \$100,000 a year (individual salary) and still be eligible.

Usually the mother must apply for Paid Parental Leave. If you are eligible, you can transfer some or all of the pay to your partner (he needs to be eligible too). The scheme gives families more options to balance work and family.

You can claim up to three months in advance, and your pay can start any time you choose from when your child is born or adopted. It will be paid in one continuous period from the start date and must all be taken with the first year after the birth or adoption. You are encouraged to apply early.

Eligible parents can receive Parental Leave pay at the same time, before or after other employer-provided paid leave or entitlements. The existing minimum entitlement to 12 months unpaid parental leave for long-term employees is unchanged.

From 1st August, employers must provide Government-funded Parental Leave pay through their usual pay cycle to eligible employees who have been with their business for at least 12 months. Other eligible parents will be paid through the Family Assistance Office.

For further information visit the website or call the appropriate number below:

www.ppl.govt.com

Parents 01800 4321

Employers 01800 1211

Questions 23 and 24

Choose TWO letters, A—E.

Write your answers in boxes 23 and 24 on your answer sheet.

Eligibility for Paid Parental Leave requires employees to have worked a certain number of hours in the months preceding the arrival of a baby. Of those, who is entitled to Paid Parental Leave?

- A. New parents only
- B. Working mothers only
- C. A couple who adopts a child
- D. A father earning less than \$100,000
- E. All parents who work for the government

Questions 25-28

Do the following statements agree with the information given in the passage on the previous page?

In boxes 25-28 on your answer sheet, write:

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

25. Employees can start getting Paid Parental Leave up to 3 months before the child is born.

26. Employees cannot receive the benefit once the child reaches the age of 12 months.
27. Employees who do not make a claim early may miss out on Paid Parental Leave.
28. Employees can take advantage of both state-paid and employer-paid parental leave at the same time.

3. Section 3 (Questions 29 - 40)

Read the text below and answer Questions 29-40.

WHY DO CLOCKS GO CLOCKWISE?

The simple answer is that clocks always go clockwise! If the clock's hands moved in the opposite direction (to what we are used to), it would still be called 'clockwise', of course! But, seriously, why do the hands move from left to right at the top? Generally, the answer given is that clocks were invented in the northern hemisphere where the sun rises in the east, travels round to the south, and sets to the west. The shadow on a typical domestic sundial in olden times would move from left to right. So, the answer is completely logical. Or is it?

If we go back to early clocks, because of their sheer size and cost, there was generally only one turret clock in a town, usually placed high on a tower for all to see and frequently accompanied by a bell that could be heard when the clock face was not visible. If we go back in time to before mechanical clocks, even if people had a sundial at home, they needed a large public sundial that could be read from a distance when they were out. Sundials were therefore placed high on a wall in the town. This is where the explanation above about clockwise movement no longer rings true: for sundials on vertical walls have

to have their hours arranged in an anti-clockwise progression. As vertical sundials would have been the predecessors of clock towers, one wonders why a right to left movement didn't become the standard. An old vertical sundial can still be seen in Queen's College, Cambridge, England. Not only does it go 'anticlockwise' but strangely (for us) the number '1' is at the bottom rather than the top.

Surely the hands on clocks have always moved in the same direction, though? Surprisingly, the answer is no. There is a clock painted in fresco in a Cathedral in Florence that is peculiar in several ways. We are used to clocks with twelve hours on the dial but this one has twenty-four and the twenty-fourth hour does not signify midnight but the hour of sunset (a system that survived until the eighteenth century apparently); furthermore, the layout of the numbers has '1' at the bottom, although of course XII is at the top, and it goes anticlockwise! This clock is not unique, however.

There were other clocks around in the 15th and 16th centuries with Roman numerals going anti-clockwise. Some of them had a hand that went around once in 24 hours, others went around once every twelve hours, and still others went around four times in 24 hours with the digits I to VI painted on the clock face. Then again, some went around once in 12 hours but the digits were marked I to VI and then I to VI again. Some of the 'once every 24 hours' ones were marked I to XII and I to XII again. There were probably even more variations than this. To find out why all clocks go clockwise and are numbered I to XII (or 1 to 12) today, we have to consider the phenomenon described in 1890 in *Principles of Economics* by Alfred Marshall.

Early clocks were massive and extremely heavy (not to mention very expensive) devices and technology over the centuries has reduced these to small timepieces that can sit on a little shelf, be carried (often in a waistcoat

pocket), or worn on the wrist. When it comes to new technologies, there are often many designs in competition with one another. Occasionally, one design is obviously pre-eminent and the others soon become obsolete. In the case of the clocks, there would not seem to be one design that is outstandingly more advantageous than the others. That is where Marshall's theory comes in; 'whatever firm [design or technology] gets a good start' eventually wins. We can assume, therefore, that one type of clock face — although it may not have had any technological advantage over the others — was somewhat more common; and, once one technology secures a larger share of the market, there are economies of scale. It becomes more cost-efficient to produce thereby giving it even greater advantage over its rivals. In this way, one technology can completely eclipse the others.

Why do clocks go clockwise? Pure chance is probably the answer. Clockwise may have been more widespread and got off to a good start. After the invention of the first mechanical clock, for a century and a half, there was no consistency in the direction, the position of the numbers on the dial, or even the number of hours shown. All this changed with the mass production of clocks and watches as domestic items. For nearly five hundred years now, they have been consistent — a clockwise dial with twelve hours and two rotations in a 24-hour period.

Questions 29-34

Do the following statements agree with the information given in the text?

In boxes 29-34 on your answer sheet, write:

TRUE if the statement agrees with the information

FALSE if the statement contradicts the information

NOT GIVEN if there is no information on this

29. 'Clockwise' has always described the left-to-right movement of a clock's hands.
30. The shadow on a domestic sundial in the southern hemisphere moves from right to left.
31. Before the invention of mechanical clocks, people used sundials to tell the time.
32. The shadow on a vertical sundial moves in a different direction from the domestic equivalent.
33. The sundial at Queen's College and the clock in the Florentine Cathedral move in the same direction.
34. On the old 24-hour clocks, number XII (12) stood for midday and XXIV (24) denoted midnight.

Questions 35-40

Complete the summary below using words from the box below.

Write your answers in boxes 35-40 on your answer sheet.

Improvement in technology has seen clocks develop from large, **35** mechanisms to very small gadgets. When new technologies arise, designs compete with one another. Sometimes, because one design is so **36**, it will replace all the others. However, it is not always the best design that wins. There is a theory that asserts the most **37**..... design wins even if it has no obvious advantage over the others. Once this design starts being **38**, its position in the market is **39** That is why there seems to be no **40** explanation for some of the accepted designs that are commonplace today.

Assured economic mass-produced consistent

Exclusive	obsolete	costly	logical
Outstanding	domestic	massive	popular