

PROGRESS TEST – IELTS READING**READING PASSAGE 1**

You should spend about 20 minutes on **Questions 1-13** which are based on Reading Passage 1 below.

MAKING TIME FOR SCIENCE

Chronobiology might sound a little futuristic – like something from a science fiction novel, perhaps – but it's actually a field of study that concerns one of the oldest processes life on this planet has ever known: short-term rhythms of time and their effect on flora and fauna.

This can take many forms. Marine life, for example, is influenced by tidal patterns. Animals tend to be active or inactive depending on the position of the sun or moon. Numerous creatures, humans included, are largely diurnal – that is, they like to come out during the hours of sunlight. Nocturnal animals, such as bats and possums, prefer to forage by night. A third group are known as crepuscular: they thrive in the lowlight of dawn and dusk and remain inactive at other hours.

When it comes to humans, chronobiologists are interested in what is known as the circadian rhythm. This is the complete cycle our bodies are naturally geared to undergo within the passage of a twenty-four-hour day. Aside from sleeping at night and waking during the day, each cycle involves many other factors such as changes in blood pressure and body temperature. Not everyone has an identical circadian rhythm. 'Night people', for example, often describe how they find it very hard to operate during the morning, but become alert and focused by evening. This is a benign variation within circadian rhythms known as a chronotype.

Scientists have limited abilities to create durable modifications of chronobiological demands. Recent therapeutic developments for humans such as artificial light machines and melatonin administration can reset our circadian rhythms, for example, but our bodies can tell the difference and health suffers when we breach these natural rhythms for extended periods of time. Plants appear no more malleable in this respect; studies demonstrate that vegetables grown in season and ripened on the tree are far higher in essential nutrients than those grown in greenhouses and ripened by laser.

Knowledge of chronobiological patterns can have many pragmatic implications for our day-to-day lives. While contemporary living can sometimes appear to subjugate biology – after all, who needs circadian rhythms when we have caffeine pills, energy drinks, shift work and cities that never sleep? – keeping in synch with our body clock is important.

The average urban resident, for example, rouses at the eye-blearing time of 6.04 a.m., which researchers believe to be far too early. One study found that even rising at 7.00 a.m. has deleterious effects on health unless exercise is performed for 30 minutes afterwards. The optimum moment has been whittled down to 7.22 a.m.; muscle aches, headaches and moodiness were reported to be lowest by participants in the study who awoke then.

Once you're up and ready to go, what then? If you're trying to shed some extra pounds, dieticians are adamant: never skip breakfast. This disorients your circadian rhythm and puts your body in starvation mode. The recommended course of action is to follow an intense workout with a carbohydrate-rich breakfast; the other way round and weight loss results are not as pronounced.

Morning is also great for breaking out the vitamins. Supplement absorption by the body is not temporal-dependent, but naturopath Pam Stone notes that the extra boost at breakfast helps us get energised for the day ahead. For improved absorption, Stone suggests pairing supplements with a food in which they are soluble and steering clear of caffeinated beverages. Finally, Stone warns to take care with storage; high potency is best for absorption, and warmth and humidity are known to deplete the potency of a supplement.

After-dinner espressos are becoming more of a tradition – we have the Italians to thank for that – but to prepare for a good night's sleep we are better off putting the brakes on caffeine consumption as early as 3 p.m. With a seven-hour half-life, a cup of coffee containing 90 mg of caffeine taken at this hour could still leave 45 mg of caffeine in your nervous system at ten o'clock that evening. It is essential that, by the time you are ready to sleep, your body is rid of all traces.

Evenings are important for winding down before sleep; however, dietician Geraldine Georgeou warns that an after-five carbohydrate-fast is more cultural myth than chronobiological demand. This will deprive your body of vital energy needs. Overloading your gut could lead to indigestion, though. Our digestive tracts do not shut down for the night entirely, but their work slows to a crawl as our bodies prepare for sleep. Consuming a modest snack should be entirely sufficient.

Questions 1-7

Do the following statements agree with the information given in Reading Passage 96?

In boxes 1–7 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 Chronobiology is the study of how living things have evolved over time.
- 2 The rise and fall of sea levels affect how sea creatures behave.
- 3 Most animals are active during the daytime.
- 4 Circadian rhythms identify how we do different things on different days.
- 5 A 'night person' can still have a healthy circadian rhythm.
- 6 New therapies can permanently change circadian rhythms without causing harm.
- 7 Naturally-produced vegetables have more nutritional value.

Questions 8–13

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

Write the correct letter in boxes 8–13 on your answer sheet.

- 8** What did researchers identify as the ideal time to wake up in the morning?
- A** 6.04
B 7.00
C 7.22
D 7.30
- 9** In order to lose weight, we should
- A** avoid eating breakfast
B eat a low carbohydrate breakfast
C exercise before breakfast
D exercise after breakfast
- 10** Which is NOT mentioned as a way to improve supplement absorption?
- A** avoiding drinks containing caffeine while taking supplements
B taking supplements at breakfast
C taking supplements with foods that can dissolve them
D storing supplements in a cool, dry environment
- 11** The best time to stop drinking coffee is
- A** mid-afternoon
B 10 p.m.
C only when feeling anxious
D after dinner
- 12** In the evening, we should
- A** stay away from carbohydrates
B stop exercising
C eat as much as possible
D eat a light meal
- 13** Which of the following phrases best describes the main aim of Reading Passage 96?
- A** to suggest healthier ways of eating, sleeping and exercising
B to describe how modern life has made chronobiology largely irrelevant
C to introduce chronobiology and describe some practical applications
D to plan a daily schedule that can alter our natural chronobiological rhythms

READING PASSAGE 2

You should spend about 20 minutes on **Questions 14-26** which are based on Reading Passage 2 below.

The Triune¹ Brain

The first of our three brains to evolve is what scientists call the reptilian cortex. This brain sustains the elementary activities of animal survival such as respiration, adequate rest and a beating heart. We are not required to consciously “think” about these activities. The reptilian cortex also houses the “startle centre”, a mechanism that facilitates swift reactions to unexpected occurrences in our surroundings. That panicked lurch you experience when a door slams shut somewhere in the house, or the heightened awareness you feel when a twig cracks in a nearby bush while out on an evening stroll are both examples of the reptilian cortex at work. When it comes to our interaction with others, the reptilian brain offers up only the most basic impulses: aggression, mating, and territorial defence. There is no great difference, in this sense, between a crocodile defending its spot along the river and a turf war between two urban gangs.

Although the lizard may stake a claim to its habitat, it exerts total indifference toward the well-being of its young. Listen to the anguished squeal of a dolphin separated from its pod or witness the sight of elephants mourning their dead, however, and it is clear that new development is at play. Scientists have identified this as the limbic cortex. Unique to mammals, the limbic cortex impels creatures to nurture their offspring by delivering feelings of tenderness and warmth to the parent when children are nearby. These same sensations also cause mammals to develop various types of social relations and kinship networks. When we are with others of “our kind” – be it at soccer practice, church, school or a nightclub – we experience positive sensations of togetherness, solidarity and comfort. If we spend too long away from these networks, then loneliness sets in and encourages us to seek companionship.

Only human capabilities extend far beyond the scope of these two cortexes. Humans eat, sleep and play, but we also speak, plot, rationalise and debate finer points of morality. Our unique abilities are the result of an expansive third brain – the neocortex – which engages with logic, reason and ideas. The power of the neocortex comes from its ability to think beyond the present, concrete moment. While other mammals are mainly restricted to impulsive actions (although some, such as apes, can learn and remember simple lessons), humans can think about the “big picture”. We can string together simple lessons (for example, an apple drops downwards from a tree; hurting others causes unhappiness) to develop complex theories of physical or social phenomena (such as the laws of gravity and a concern for human rights).

The neocortex is also responsible for the process by which we decide on and commit to particular courses of action. Strung together over time, these choices can accumulate into feats of progress unknown to other animals. Anticipating a better grade on the following morning’s exam, a student can ignore the limbic urge to socialise and go to sleep early instead. Over three years, this ongoing sacrifice translates into a first-class degree and a

scholarship to graduate school; over a lifetime, it can mean groundbreaking contributions to human knowledge and development. The ability to sacrifice our drive for immediate satisfaction in order to benefit later is a product of the neocortex.

Understanding the triune brain can help us appreciate the different natures of brain damage and psychological disorders. The most devastating form of brain damage, for example, is a condition in which someone is understood to be brain dead. In this state a person appears merely unconscious – sleeping, perhaps – but this is illusory. Here, the reptilian brain is functioning on autopilot despite the permanent loss of other cortices.

Disturbances to the limbic cortex are registered in a different manner. Pups with limbic damage can move around and feed themselves well enough but do not register the presence of their littermates. Scientists have observed how, after a limbic lobotomy², “one impaired monkey stepped on his outraged peers as if treading on a log or a rock”. In our own species, limbic damage is closely related to sociopathic behaviour. Sociopaths in possession of fully-functioning neocortexes are often shrewd and emotionally intelligent people but lack any ability to relate to, empathise with or express concern for others.

One of the neurological wonders of history occurred when a railway worker named Phineas Gage survived an incident during which a metal rod skewered his skull, taking a considerable amount of his neocortex with it. Though Gage continued to live and work as before, his fellow employees observed a shift in the equilibrium of his personality. Gage’s animal propensities were now sharply pronounced while his intellectual abilities suffered; garrulous or obscene jokes replaced his once quick wit. New findings suggest, however, that Gage managed to soften these abrupt changes over time and rediscover an appropriate social manner. This would indicate that reparative therapy has the potential to help patients with advanced brain trauma to gain an improved quality of life.

¹ Triune = three-in-one

² Lobotomy = surgical cutting of brain nerves

Questions 14-22

Classify the following as typical of

- A the reptilian cortex
- B the limbic cortex
- C the neocortex

Write the correct letter, A, B or C, in boxes 14–22 on your answer sheet.

- 14 giving up short-term happiness for future gains
- 15 maintaining the bodily functions necessary for life
- 16 experiencing the pain of losing another
- 17 forming communities and social groups
- 18 making a decision and carrying it out
- 19 guarding areas of land
- 20 developing explanations for things
- 21 looking after one's young
- 22 responding quickly to sudden movement and noise

Questions 23–26

Complete the sentences below.

Write **NO MORE THAN TWO WORDS** from the passage for each answer.

Write your answers in boxes 23–26 on your answer sheet.

- 23 A person with only a functioning reptilian cortex is known as
- 24 in humans is associated with limbic disruption.
- 25 An industrial accident caused Phineas Gage to lose part of his
- 26 After his accident, co-workers noticed an imbalance between Gage's and higher-order thinking.