

You should spend about 20 minutes on Questions 1–13, which are based on Reading Passage 1 on pages 1 and 2.

Why does music move us?

How is it that the combination of sound waves that we know as music can have such a moving effect, asks Roger Highóeld.

In the most basic terms, sound is merely a pressure wave that ripples through air. So how does the combination of sound waves that we know as music become, as Tolstoy put it, 'the shorthand of emotion'? Or, to put it another way, how can mechanical vibrations have such a moving effect?

The answer, according to Philip Ball, author of *The Music Instinct*, lies not in the notes themselves, but in our brains. Recently, I hosted an event with him at the Royal Institution, at which he explained to a packed audience why listening to much current pop music was as demanding as listening to Bach or Beethoven.

Whatever your favourite genre of music your brain has to work hard to make sense of it. Its remarkable skill at pattern detection will take the extraordinary harmonics-crammed richness of a note played on a piano or flute, and magically collapse it in your head, so that it is perceived as a single note rather than a forest of overtones.

My companion explained that we are pattern seekers, and that music helps us to find patterns in sound. We come equipped with all sorts of rules of thumb to make sense of what we hear. Those rules are the brain mechanisms that we use to organise sound and make sense of music.

Medical scanners have shown that this process is not limited to one part of the brain. Different aspects of music activate different areas. We use our temporal lobe to process melody and pitch, our hippocampus to recover musical memories and what we might call 'rhythm-processing circuits' to fire up motor functions. Interestingly, the brain gives out the same signal of confusion when it encounters sentences that do not make sense as it does when the syntax of music sounds wrong and when chords do not complement one another. If you study the way we react to patterns of notes, you find there is something special about a pitch that is double the frequency of another; the interval better known as an octave.

The biggest question, however, is whether this kind of mental circuitry is designed specifically to handle music, or if songs and tunes are just 'auditory cheesecake', as Harvard University's Steven Pinker puts it. He claims that sounds accidentally generate pleasure via neural systems. The ability to hear them in the first place evolved to respond to other kinds of stimuli.

The disappointing truth might be that we simply do not know. We do know, however, that the way we learn to appreciate music is profoundly affected by how we were raised. A few years ago, Philip Ball wrote about the fact that music seems to have a national character, probably as a result of the rhythms and cadences of the different language spoken in each case. The English tend to vary the pitch of their speech, and the length of their vowels, more than the French, and their composers

follow suit in the rhythms and intervals they use. On the latter measure, Elgar is considered by some to be the most 'English' of all composers, perhaps explaining why his music is so frequently the background to important national pageants.

Similarly, concepts of what is harmonious boil down to a matter of convention, not acoustics. The older generation struggle with modern music and complain that it is dissonant – full of horrible jarring notes that are difficult to listen to. However, dissonance has always been in music. Beethoven and Chopin are full of it. It is all a matter of convention. What we regard as consonant now was thought dissonant in the Middle Ages. The augmented fourth was thought sinister back then, when it was dubbed 'diabolus in musica'. We still find it slightly unsettling today, which might explain why it is so popularly used in heavy metal.

Towards the end of my evening with Philip Ball, I asked whether music's effects on the brain can be harnessed for good. It was a perfect set-up for him to examine the so-called 'Mozart effect' – the belief that playing your children classical music will make them brainier. He cited an experiment conducted in 1996, which concluded that playing babies rock music had a more beneficial effect than did playing them Mozart. The essential factor was not the music per se, but the fact that it put the children in bright spirits.

For Ball, the definition of the 'music instinct' is that we are predisposed to make the world a musical place. Apart from the tiny proportion of the population who really are tone-deaf, it is impossible to say: 'I am not musical,' even if it may seem that way whenever you get dragged along to participate in karaoke.

Questions 1–6

Complete each sentence with the correct ending A–I from the box below.

Write the correct letter A–I in boxes 1–6 on your answer sheet.

- 1 Hearing mechanical vibrations
- 2 Listening to popular music
- 3 Recognising patterns
- 4 Hearing music that we have previously heard
- 5 Listening to discordant music
- 6 Hearing an octave

- A is innate and allows the brain to simplify complex musical combinations.
- B is an ability that most people do not possess.
- C can affect us at a surprisingly deep level.
- D activates our temporal lobe.
- E has a very particular effect on most listeners.
- F activates our hippocampus.
- G is more challenging than most people think.
- H depends on the genre of music you prefer listening to.
- I has the same effect as reading sentences that do not make sense.

Questions 7–13

Do the following statements agree with the information given in Reading Passage 1?

In boxes 7–13 on your answer sheet, write

TRUE	<i>if the statement agrees with the information.</i>
FALSE	<i>if the statement contradicts the information.</i>
NOT GIVEN	<i>if there is no information on this.</i>

- 7 Steven Pinker believes that humans' ability to enjoy sounds was an important development.
- 8 English and French musicians compose music that is similar in style.
- 9 Elgar composed music that typified his country of origin.
- 10 Older people tend to listen to classical rather than popular music.
- 11 In heavy metal music, the effect of a particular note is recognised.
- 12 Philip Ball stresses the benefits of children listening to classical music.
- 13 Karaoke tends to attract people who are not very musical.

You should spend about 20 minutes on **Questions 14–26**, which are based on Reading Passage 2 on pages 5 and 6.

Rag-pickers: The Bottom Rung in the Waste Trade Ladder

- A** Recycling has existed in one form or another for many years in India and is complicated. Long before the term itself seeped into everyday vocabulary, women separated newspapers and sold them to weekend buyers, who cycled by with a weighing scale and loose change to pay with. Bottles were reused until they broke, and tins were simply never thrown away. As a 13-year-old, I was surrounded by baby food tins from my infancy, storing rice, dals and chutneys. These habits are sadly dying out, superseded by the advent of the non-recyclable, non-reusable sachet and plastic packaging. Now, instead of being stored away for a rainy day, unwanted products are tossed carelessly into the dustbin. And this is where modern-day recycling begins. In Delhi, for every hundred residents, one person is engaged in recycling.
- B** All recycling in India is undertaken by and via the informal sector. This sector includes rag-pickers, middlemen, transporters, and finally, reprocessors. In terms of human resources this sector is arranged in a table-top pyramid with rag-pickers at the base, forming the backbone of waste collection. At the thinner end of the wedge are the small middlemen, who buy the waste and sell it onto larger middlemen, who usually specialise in particular items and materials. Above them are factory owners, who procure supplies from those beneath through a ubiquitous network of agents.
- C** Delhi is particularly interesting, because it has one of the largest and most vibrant recycling bases in the country. The 100,000 waste-pickers are the base of a huge recycling pyramid, handling something like 15% of the solid waste generated in the city. Since over 7,000 metric tonnes of waste is generated daily, this is a substantial business. A range of material is processed within the sector, including plastics, metals, paper and glass. Studies estimate that this informal labour force saves the three Delhi Municipalities a minimum of Rs. 6 lakhs (approx. 12,000 USD) every day. It has been calculated that a single scrap of material can increase 700% in value before it is even reprocessed, as it moves along the recycling chain.
- D** So, recycling in Delhi is big business but is it a green business, and who does it benefit? Consider, first, the rag-picker, usually a young person, though not a child, with a large woven sack hanging from his or her shoulder. He or she will begin work as early as 4am, or miss the most profitable finds. As locations and routes are territorial, residents may begin to recognise their own rag-picker. By late afternoon, or when the bag is full, the rag-picker hunts down a middleman to sell to. The waste should be separated according to almost 30 different categories, and it must be clean and dry. In secret segregation patches around the city, thousands of the poorest inhabitants sort through waste and wash it from makeshift water sources. Hunched over for hours, the poor undertake what the privileged preach: segregation of waste. If the privileged had done this themselves, the poor would suffer less from backache, allergies and respiratory disorders, and have fewer cuts, burns and dog-bites. The transaction at the selling point is complex and frequently unjust. A rag-picker may be paid less if waste is sub-standard or wet, or if the buyer is temporarily cash strapped. Rag-pickers often take loans from buyers, and soon find themselves working simply to pay back debt.

- E** Rag-pickers generally live either in slums, often the shop or warehouse of a middleman, or outside in alleyways and on footpaths. Some sleep in dustbins. Their access to basic amenities and essential services is virtually non-existent. The police regularly beat them or burn their bags of waste, leaving them with nothing to show for a day's work. Municipal workers charge rag-pickers to be allowed to forage in a bin, and if it is a lucrative bin, the rates gradually increase. Once ensconced, the municipal worker makes them do additional work, sweeping or loading trucks. It is not unknown for the police to pick up rag-pickers and force them to clean the police station.
- F** Sadly and shockingly, this whole process subsidises the consumption of various materials by the city's wealthier citizens. The example of plastics is a good example. According to a report by the Ministry of Environment, the plastics industry is growing at 10% per annum, and almost 52% of this is expected to be used in the packaging sector. Packaging is a short life use and it will be collected and processed as waste by the informal sector. It will be undertaken in a manner which ensures that ecologically, economically and socially, the costs will be internalised by this recycling chain.
- G** In India, the informal sector has an essential role because it is able to undertake recycling, which the municipality cannot. However, although it is critical, especially to the handling of solid waste, the sector is unable to optimise its work. There is a stark lack of awareness and specific skills, as well as very poor working conditions. The services provided by this sector are poorly understood and ultimately free to consumers, so are currently unappealing to the private sector. Recycling, at least for now, must be seen as the flip side of urban middle class consumption.
- The state's attitude towards informal recycling is schizophrenic. On the one hand, in conferences and seminars, the sector is praised and rag-pickers complemented for their contribution. On the other hand, the sector is ignored by planners and policy makers, who look to reform municipal systems. The current Third Master Plan for Delhi, though still being drafted in secrecy, has been largely criticised for having 'left out the informal sectors'. This lack of planning perpetuates the image of the sector as an illegal and illegitimate one, which is projected as encroaching upon the city, rather than serving it.
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Questions 14–21

Reading passage 2 has seven sections, **A–G**. Which section contains the following information? Write the correct letter **A–G** in boxes 14–21 on your answer sheet.

NB You may use any letter more than once.

- 14 an account of a typical day's labour
- 15 examples of cruelty and specific exploitation
- 16 an accusation that double standards are operating
- 17 a description of a hierarchical system
- 18 an allegation that wealthier people are not doing what they could
- 19 an assertion that the rich benefit from the hard work of the poor
- 20 a summary of how a business has changed over time
- 21 a claim that recycling is economically beneficial to the authorities

Questions 22–26

Complete the summary below.

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

Write your answers in boxes 22–26 on your answer sheet.

The notion of recycling in India has changed hugely. At one time, people **22** everything from newspapers to household containers. Now, with the **23** disposable products and plastic packaging, people simply throw things away instead of putting them aside for **24** The **25** takes care of the whole recycling process nowadays. Rag-pickers are at the bottom of a **26** with everyone from the various middlemen to the factory owners and their agents looking down.

You should spend about 20 minutes on **Questions 27–40**, which are based on Reading Passage 3 on pages 9 and 10.

In Praise of Fast Food

The media and a multitude of cookbook writers would have us believe that modern, fast, processed food is a disaster, and that it is a mark of sophistication to bemoan the steel roller mill and sliced white bread while yearning for stone-ground flour and a brick oven. Perhaps, we should call those who scorn industrialised food, *culinary Luddites*, after the 19th-century English workers who rebelled against the machines that destroyed their way of life. Instead of technology, what these Luddites abhor is commercial sauces and any synthetic aid to flavouring our food.

Culinary Luddism has come to signify more than just taste, however. It presents itself as a moral and political crusade, and it is here that I begin to back off. As a historian, I cannot accept the notion that the sunny, rural days of yesterday is in such contrast to the grey industrial present. I refute the philosophy that so crudely pits fresh and natural against processed and preserved, local against global, slow against fast and additive-free against contaminated. History shows, I believe, that the Luddites have things back to front.

It will come as a shock to many to discover that the notion of food being fresh and natural is actually a rather modern one. For our ancestors, what was natural frequently tasted bad. Fresh meat was rank and tough, fresh fruit inedibly sour, and fresh vegetables horribly bitter. Natural was unreliable. Fresh milk soured, eggs went rotten and everywhere seasons of plenty were followed by seasons of hunger. What's more, natural was usually indigestible. Grains, which supplied 50 to 90 per cent of the calories in most societies, had to be threshed, ground and cooked to be fit for consumption.

So to make food tasty, safe, digestible, and healthy, our forebears bred, ground, soaked, leached, curdled, fermented, and cooked naturally occurring plants and animals until they were nothing at all like their original form. They created sweet oranges and juicy apples and non-bitter legumes, happily abandoning their more natural but less tasty ancestors. They dried their

meat and fruit, salted and smoked their fish, curdled and fermented their dairy products, and cheerfully used additives and preservatives like sugar, salt, oil and vinegar to make food edible.

Eating fresh, natural food was regarded with suspicion verging on horror; only the uncivilised, the poor, and the starving resorted to it. The ancient Greeks regarded the consumption of greens and root vegetables as a sign of bad times, and many succeeding civilizations believed the same. Happiness was not a verdant garden abounding in fresh fruits, but a securely locked storehouse jammed with preserved, processed foods.

What about the idea that the best food is handmade in the country? That food comes from the country goes without saying. However, the idea that country people eat better than city dwellers is preposterous. Very few of our ancestors working the land were independent peasants baking their own bread and salting down their own pig. Most were burdened with heavy taxes and rent, often paid directly by the food they produced. Many were ultimately serfs or slaves, who subsisted on what was left over; on watery soup and gritty flatbread.

The dishes we call ethnic and assume to be of peasant origin were invented for the urban, or at least urbane, aristocrats who collected the surplus. This is as true of the lasagna of northern Italy as it is of the chicken korma of Mughal Delhi, the moo shu pork of imperial China, and the pilafs and baklava of the great Ottoman palace in Istanbul. Cities have always enjoyed the best food and have invariably been the focal points of culinary innovation.

Preparing home-cooked breakfast, dinner, and tea for eight to ten people 365 days a year was servitude. Churning butter or skinning and cleaning rabbits, without the option of picking up the phone for a pizza if something went wrong, was unremitting, unforgiving toil. Not long ago, in Mexico, most women could expect to spend five hours a day kneeling at the grindstone preparing the dough for the family's tortillas.

In the first half of the 20th century, Italians embraced factory-made pasta and canned tomatoes. In the second half, Japanese women welcomed factory-made bread because they could sleep a little longer instead of getting up to make rice. As supermarkets appeared in Eastern Europe, people rejoiced at the convenience of ready-made goods. Culinary modernism had proved what was wanted: food that was processed, preservable, industrial, novel, and fast, the food of the elite at a price everyone could afford. Where modern food became available, people grew taller and stronger and lived longer.

So the sunlit past of the culinary Luddites never existed and their ethos is based not on history but on a fairy tale. So what? Certainly no one would deny that an industrialised food supply has its own problems. Perhaps we should eat more fresh, natural, locally-sourced, slow food. Does it matter if the history is not quite right? It matters quite a bit, I believe. If we do not understand that most people had no choice but to devote their lives to growing and cooking food, we are incapable of comprehending that modern food allows us unparalleled choices. If we urge the farmer to stay at his olive press and the housewife to remain at her stove, all so that we may eat traditionally pressed olive oil and home-cooked meals, we are assuming the mantle of the aristocrats of old. If we fail to understand how scant and monotonous most traditional diets were, we fail to appreciate the 'ethnic foods' we encounter.

If we assume that good food means only old or slow or homemade food, we miss the fact that many industrial foods are better. Certainly no one with a grindstone will ever produce chocolate as sophisticated as that produced by 72 hours in a conching machine. And let us not forget that the current popularity of Italian food owes much to two convenience foods that even purists love, factory pasta and canned tomatoes. Far from fleeing them, we should be clamouring for more high-quality industrial foods.

If we romanticise the past, we may miss the fact that it is the modern, global, industrial economy (not the local resources of the wintry country around New York, Boston, or Chicago) that allows us to savour traditional, fresh, and natural foods. Fresh and natural loom so large because we can take for granted the processed staples – salt, flour, sugar, chocolate, oils, coffee, tea – produced by food corporations.

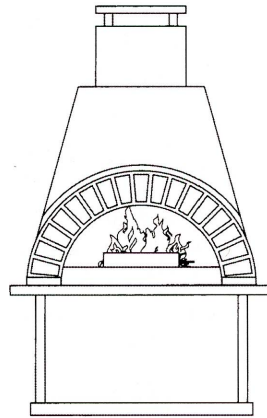
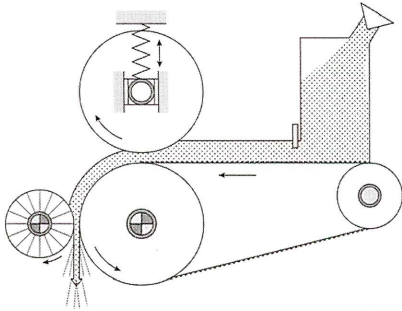
Culinary Luddites are right, though, about two important things: We need to know how to prepare good food, and we need a culinary ethos. As far as good food goes, they've done us all a service by teaching us how to use the bounty delivered to us by the global economy. Their ethos, though, is another matter. Were we able to turn back the clock, as they urge, most of us would be toiling all day in the fields or the kitchen, and many of us would be starving.

Questions 27–29

Label the diagrams below.

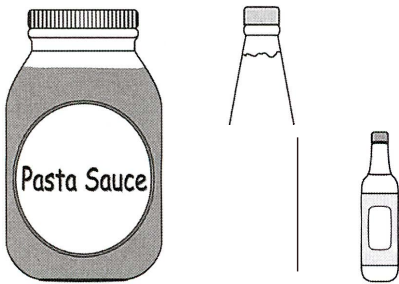
Choose **NO MORE THAN THREE WORDS** from Reading Passage 3 for each answer.

Write your answers in boxes 27–29 on your answer sheet.



27 = mass-produced bread

28 = traditionally produced bread



29 enhanced by synthetic products

Questions 30–34

Complete the sentences.

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

Write your answers in boxes 30–34 on your answer sheet.

- 30 The writer does not believe that a philosophy of food production is superior to an industrialised philosophy of food production.
- 31 In the past, the majority of fresh, natural food and could not be relied on.
- 32 Most people's intake consisted largely of, which required a great deal of preparation.
- 33 The of food was unrecognisable once it had gone through the various processes of making it edible.
- 34 For the ancient Greeks, a full of food was preferable to a garden full of fruit.

Questions 35–40

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

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

- 35 What does the writer say about peasants?
- A They had a better diet than most people living in cities.
 - B They were largely self-sufficient.
 - C Much of what they produced went to a landowner.
 - D They created imaginative soup and flatbread dishes.
- 36 Lasagna is an example of a dish
- A invented by peasants.
 - B created for wealthy city-dwellers.
 - C that was only truly popular in northern Italy.
 - D that tastes like dishes from several other countries.
- 37 Which of the following is NOT an important factor mentioned in the eighth and ninth paragraphs?
- A the development of take-away food as an option
 - B the arduous nature of food preparation before mass-production
 - C the global benefits of industrialised food production
 - D the range of advantages that industrialised food production had
- 38 What is the important point the writer wishes to make in the tenth paragraph?
- A There are disadvantages to modern food production as well as advantages.
 - B People need to have a balanced diet.
 - C People everywhere now have a huge range of food to choose from.
 - D Demand for food that is traditionally produced exploits the people that produce it.
- 39 The writer mentions chocolate, pasta and canned tomatoes in the same paragraph because
- A the industrialised version has advantages over the natural version.
 - B they are all products associated with a sophisticated lifestyle.
 - C they are all products that have suffered from over-commercialisation.
 - D they are the most popular examples of industrial foods.
- 40 What is the overall point that the writer makes in the reading passage?
- A People should learn the history of the food they consume.
 - B Modern industrial food is generally superior to raw and natural food.
 - C Criticism of industrial food production is largely misplaced.
 - D People should be more grateful for the range of foods they can now choose from.