

CODE:

PAPER 1: READING

READING 1

Read the text below and do exercises on page 3 of the Paper 1

5 Mind-Boggling Psychiatric Treatments

by Dan Greenberg

Adapted from: metal_floss magazine

TEXT 1. INSULIN-COMA THERAPY

The coma-therapy trend began in 1927. Viennese physician Manfred Sakel accidentally gave one of his diabetic patients an insulin overdose, and it sent her into a coma. But what could have been a major medical faux pas turned into a triumph. The woman, a drug addict, woke up and declared her morphine craving gone. Then Sakel made the same mistake with another patient, who also woke up claiming to be cured. Before long, Sakel was intentionally testing the therapy with other patients and reporting a 90 percent recovery rate, particularly among schizophrenics. Strangely, however, Sakel's treatment successes remain a mystery. Presumably, a big dose of insulin causes blood sugar levels to plummet, which starves the brain of food and sends the patient into a coma. But why this unconscious state would help psychiatric patients is anyone's guess. Regardless, the popularity of insulin therapy faded, mainly because it was dangerous. Slipping into a coma is no walk in the park, and between one and two percent of treated patients died as a result.

TEXT 2. TREPANATION

Ancient life was not without its hazards. Between wars, drunken duels, and the occasional run-in with an inadequately domesticated pig, it's no surprise that archaic skulls tend to have big holes in them. But not all holes are created with equal abandon. Through the years, archaeologists have uncovered skulls marked by a carefully cut circular gap, which shows signs of being made long before the owner of the head passed away. These fractures were no accident; they were the result of one of the earliest forms of psychiatric treatment called trepanation. The basic theory behind this "therapy" holds that insanity is caused by demons lurking inside the skull. Boring a hole in the patient's head creates a door through which the demons can escape, and — voila — out goes the crazy. Despite the peculiarity of the theory and lack of major-league anesthetics, trepanation was by no means a limited phenomenon. From the Neolithic era to the early 20th century, cultures all over the world used it as a way to cure patients of their ills. Doctors eventually phased out the practice as less invasive procedures were developed. Average Joes, on the other hand, didn't all follow suit. Trepanation patrons still exist. In fact, they even have their very own organizations and Web sites!

TEXT 3. ROTATIONAL THERAPY

Charles Darwin's grandfather Erasmus Darwin was a physician, philosopher, and scientist, but he wasn't particularly adept at any of the three. Consequently, his ideas weren't always taken seriously. Of course, this could be because he liked to record them in bad poetic verse (sample: "By immutable immortal laws / Impress'd in Nature by the great first cause, / Say, Muse! How rose from elemental strife / Organic forms, and kindled into life"□). It could also be because his theories were a bit far-fetched, such as his spinning-couch treatment. Darwin's logic was that sleep could cure disease and

that spinning around really fast was a great way to induce the slumber. Nobody paid much attention to it at first, but later, American physician Benjamin Rush adapted the treatment for psychiatric purposes. He believed that spinning would reduce brain congestion and, in turn, cure mental illness. He was wrong. Instead, Rush just ended up with dizzy patients who were still crazy. These days, rotating chairs are limited to the study of vertigo and space sickness.

TEXT 4. HYDROTHERAPY

If the word "hydrotherapy" conjures up images of Hollywood stars lazily soaking in rich, scented baths, then you probably weren't an early 20th-century mental patient. Building off the idea that a dip in the water is often calming, psychiatrists of yore attempted to remedy various symptoms with corresponding liquid treatments. For instance, hyperactive patients got warm, tiring baths, while lethargic patients received stimulating sprays. Some doctors, however, got a bit too zealous about the idea, prescribing therapies that sounded more like punishment than panacea. One treatment involved mummifying the patient in towels soaked in ice-cold water. Another required the patient to remain continuously submerged in a bath for hours or even days—which might not sound so bad, except they were strapped in and only allowed out to use the restroom. Finally, some doctors ordered the use of high-pressure jets. Sources indicate that at least one patient was strapped to the wall in the crucifixion position (never a good sign) and blasted with water from a fire hose. Like many extreme treatments, hydrotherapy was eventually replaced with psychiatric drugs, which tended to be more effective and more pleasant.

TEXT 5. MESMERISM

Much like Yoda, Austrian physician Franz Mesmer (1734-1815) believed that an invisible force pervaded everything in existence, and that disruptions in this force caused pain and suffering. But Mesmer's ideas would have been of little use to Luke Skywalker. His basic theory was that the gravity of the moon affected the body's fluids in much the same way it caused ocean tides, and that some diseases accordingly waxed and waned with the phases of the moon. The dilemma, then, was to uncover what could be done about gravity's pernicious effects. Mesmer's solution: use magnets. After all, gravity and magnetism were both about objects being attracted to each other. Thus, placing magnets on certain areas of a patient's body might be able to counteract the disruptive influence of the moon's gravity and restore the normal flow of bodily fluids. Surprisingly, many patients praised the treatment as a miracle cure, but the medical community dismissed it as superstitious hooey and chalked up his treatment successes to the placebo effect. Mesmer and his theories were ultimately discredited, but he still left his mark. Today, he's considered the father of modern hypnosis because of his inadvertent discovery of the power of suggestion, and his name lives on in the English word "mesmerize."

Task 1. Decide if the sentences are true (T) or false (F).

1. Dr. Manfred Sakel gave his patient too much insulin purposefully.
2. Dr. Sakel used an insulin overdose on a large number of patients.
3. Insulin therapy was successful because it was deemed safe.
4. In the ancient times it was believed that bad spirits lived in the patients' heads.
5. Trepanation was forbidden and has not been performed for centuries.
6. Charles Darwin's grandfather was a famous poet.
7. In one of the methods of treatment with hydrotherapy, the patient had to stay in the bath and was not allowed to use the toilet even.
8. Hydrotherapy was first used in Hollywood to calm down the hysterical movie stars.
9. According to dr. Mesmer it was the moon that was responsible for the bodily fluids.
10. The medical world widely accepted dr. Mesmer's ideas of placing magnets in various areas of the body to preserve balance of the moon's influence.

Total _____/10

Task 2. Circle the correct answer. Only one answer is correct.

- I. The word "craving" in Text 1 is NOT synonymous with:
 - a. Yearning
 - b. hankering
 - c. distaste
 - d. appetite

- II. According to the author of the article:
 - a. In the past, people used wild pigs to make holes in their heads
 - b. Drank a lot and misbehaved.
 - c. Had a lot of accidents as a result of which holes in their heads appeared.
 - d. Suffered serious mental disturbances, especially in the Neolithic period.

- III. According to Erasmus Darwin, the best way to fall asleep was to:
 - a. Think about the muses.
 - b. Remain in the vertical position for a very long time.
 - c. Lay down on a couch that is fast turned around.
 - d. Get hypnotized.

- IV. The word "zealous" is the antonym of:
 - a. Devoted
 - b. Unenthusiastic
 - c. Fervent
 - d. Impassioned

- V. The English word "to mesmerize" coming from the name of dr. Mesmer means to:
 - a. Hypnotize
 - b. Stupefy
 - c. Bore
 - d. Answers a and b are correct

Total _____/5

How the brain recognizes speech sounds is revealed

Adapted from Medical News Today

Researchers at the University of California San Francisco 1. _____ in a new study - published in the journal Science - that the shaping 2. _____ sound by our mouths leaves "an acoustic trail" that the brain follows. Scientists have known for some time that it is the superior temporal gyrus (STG; also known as "Wernike's 3. _____ ") where speech sounds are interpreted. But not 4. _____ has been known about how the brain actually processes speech. To investigate this, the University of California San Francisco (UCSF) researchers placed neural recording devices directly onto the surface of the brains of six patients who were 5. _____ epilepsy surgery. This allowed the researchers to capture very rapid changes in the brain.

The brain is 'tuned' to speech

This was one of the most advanced studies 6. _____ the brain's interpretation of speech. Previous studies 7. _____ only been able to analyse neural responses 8. _____ just a handful of natural or synthesized speech sounds, but because of the speed of the technology used by the UCSF team, they were able to use every kind of speech sound in the English language, 9. _____ times. The researchers collected 10. _____ from the STGs of the the patients as they listened to 500 unique English sentences spoken by 400 different people.

What the researchers expected was 11. _____ see the patients' brains respond to "phonemes." Phonemes are the individual sound segments that 12. _____ up language - the researchers give the example of the "b" sound in "boy." 13. _____, the researchers found that the brain was "tuned" to an even simpler function of language - something linguists call "features." Features are distinctive "acoustic signatures" that the human body makes 14. _____ we move our lips, tongue or vocal cords.

Plosives and fricatives

One type of feature are 15. _____ "plosives" - these occur when, to make a certain speech sound, the speaker has to use the lips or tongue to obstruct air flowing from their lungs, causing a brief 16. _____ of air. Examples of plosives are the consonants p, t, k, b and d.

17. _____ type of feature are "fricatives" - these sounds are when the airway is only partially obstructed, which causes friction in the vocal tract. S, z and v are examples of fricatives. Analysing the data from the patients' brains, the researchers saw the STGs of the patients "light up" 18. _____ the participants heard the different speech features. The team found that the brain recognized the "turbulence" created by a fricative, or the "acoustic pattern" of a plosive, 19. _____ than individual phonemes such as b or z.

Sounds as 'shapes'

The researchers compare this system for interpreting the "shapes" of sounds to the way the brain recognizes visual objects using edges and shapes. The visual system allows us to identify known objects 20. _____ of the perspective from which we are viewing them, so the researchers think it 21. _____ sense that the brain would apply a similar algorithm to understanding sound.

The study's senior author, Dr. Edward F. Chang, says: "It's the conjunctions of responses in combination that 22. _____ you the higher idea of a phoneme as a complete object. By studying all of the speech sounds in English, we found that the brain has a systematic organization for basic sound feature units, kind of like elements in the 23. _____ table."

The UCSF team hopes their findings will 24. _____ to work around reading disorders. In a reading disorder, printed words are inaccurately mapped by the brain onto speech sounds. But the team thinks that the findings are significant in their own right. "This is a very intriguing glimpse into speech processing," Chang says. "The brain regions where speech is processed in the brain had been identified, but no one has really known how that processing happens."

Recently, Medical News Today reported on a study that found speech uses 25. _____ sides of the brain - previously scientists thought just one half of the brain was used for speech and language.

- | | | | |
|-------------------------|----------------|-------------------|----------------------------|
| 1. a. points out | b. presents | c. show | d. illustrate |
| 2. a. of | b. at | c. in | d. on |
| 3. a. place | b. spot | c. area | d. district |
| 4. a. lot | b. much | c. a lots | d. many |
| 5. a. doing | b. going under | c. operating | d. undergoing |
| 6. a. of | b. in | c. concerned | d. involving in |
| 7. a. had | b. have | c. has | d. were |
| 8. a. with | b. to | c. onto | d. into |
| 9. a. number of | b. multiple | c. numbers | d. lots |
| 10. a. informations | b. dates | c. data | d. news |
| 11. a. to | b. --- | c. of | d. about |
| 12. a. comprise | b. make | c. constitute | d. all answers are correct |
| 13. a. Even though | b. Although | c. Instead | d. Indeed |
| 14. a. in the course of | b. during | c. at the time of | d. when |
| 15. a. called | b. referred | c. also known | d. consider |
| 16. a. gulp | b. explosion | c. burst | d. blow |
| 17. a. Others | b. Different | c. Another | d. Anothers |
| 18. a. as | b. when | c. the moment | d. all answers are correct |
| 19. a. much | b. rather | c. possible | d. quite |
| 20. a. regardless | b. regarding | c. regardful | d. ignorant |
| 21. a. makes | b. does | c. creates | d. builds |
| 22. a. offers | b. present | c. give | d. introduce |
| 23. a. chemistry | b. periodic | c. elementary | d. elemental |
| 24. a. succeed | b. subtract | c. contribute | d. prevail |
| 25. a. every | b. either | c. each | d. both |

Total _____/25

PAPER 2 – LISTENING

LISTENING ONE – Crohn’s disease

You are going to listen to a talk given by a doctor about Crohn’s disease. The following information comes from the talk, but it has been paraphrased and mixed. Organize the information to rearrange the original order in which the doctor has given his speech. Some of the sentences have been numbered.

- ___ Biological treatment makes it possible for affected children to avoid being operated on.
- ___ In some parts of the UK, the number of people affected with this condition has doubled over the last years.
- ___ Doctors and scientists are trying to find out which microorganisms seem to be responsible for the inflammation.
- 1** The average child affected by Crohn’s disease is aged between 12 and 14.
- ___ It has not been established what brings about the disease, which makes it impossible to determine whether the abnormal intestinal microbiota is the cause or the result of the inflammation.
- ___ The aim of the treatment is to reduce the inflammatory reactions of the immunological system.
- 15** Biological medications trigger the reduction of the symptoms of the disease, but they do not allow them to disappear in the long run.
- ___ The majority of medications used in Crohn’s disease influence the immune system.
- ___ Crohn’s disease may affect any part of the gastrointestinal system, from the oral cavity to the anus.
- ___ The doctors haven’t been able to establish the source of the disease in three quarters of patients.
- 7** Some research seems to suggest that the administration of antibiotics to young children may put them at risk of many disorders, including Crohn’s disease.
- ___ Enteral nutrition is a good way to induce subsiding of symptoms and improving the overall condition of patients.
- ___ In almost 25% of patients with Crohn’s disease, the harmless intestinal microbiota may be held responsible for mounting the immunological response to some atypical microorganisms in the intestine.
- ___ In order to improve the condition of the intestines in children with Crohn’s disease, children are administered special liquid food directly to their bowel, and they mustn’t eat anything else for as long as several weeks.
- ___ The mechanism that triggers the erosion of the digestive system and causes symptoms like pain and diarrhea is quite well understood.

Total _____/15

TASK 2. Note down the exact words that the doctor uses to express the following ideas. The first letter of the words have been provided.

- Reducing your immunological reaction – s _____ your i _____
r _____
- People whose genome makes them more likely to develop the disease – g _____
p _____ i _____
- (Those who) develop the disease before turning 18 years of age – p _____ p
_____ u _____ the age of 18
- The first years of the child's life in which their organism develops – e _____
f _____ years of life
- The last part of the digestive system – b _____ e _____
- The intestinal microbiota – g _____ f _____
- The very basic reason for something – u _____ c _____
- To avoid operation – to p _____ i _____ s _____
- We don't know the cause of – we're not c _____ what the t _____ is
- Used mainly in children – used p _____ in children

Total _____/10

LISTENING 2

Listen to the following radio programme and choose the correct answer. Only one answer is correct.

1. The young female patient presented to the A&E with
 - a. a shooting pain between her shoulder blades,
 - b. a pain in her side that radiated to the place between her shoulder blades,
 - c. a shooting abdominal pain,
 - d. a pain in her side that was so strong that she was unable to do anything about it.
2. She reported seeing her GP who diagnosed her with
 - a. a trapezius nerve pain,
 - b. a trapezoid body pain,
 - c. a trapped nerve,
 - d. a trapping nerve pain.
3. The factor that aggravated the pain was
 - a. movement,
 - b. expiration,
 - c. respiration in general,
 - d. taking deep breaths.
4. The patient reported to have visited a walk-in centre
 - a. where she was administered some analgesics,
 - b. she underwent a minor procedure to alleviate the pain,
 - c. because the pain was killing her,
 - d. because she had no painkillers at home.

5. The patient
 - a. was unable to rate the pain on the scale from 1 to 10,
 - b. rated the pain on 9 on the scale from 1 to 10,
 - c. rated the pain on 1 on the scale from 1 to 10,
 - d. was asked to rate the pain on the scale from 1 to 10, but didn't say anything.
6. The patient could have
 - a. anything from a punctured lung and infection to a sprain of the rib,
 - b. a punctured lung and infection,
 - c. a sprain of the rib resulting in infection,
 - d. a punctured lung, infection and a sprain of the rib.
7. The nurse asked the patient to wait in the minors' area and assessed the waiting time as
 - a. anywhere between 60 and 90 minutes,
 - b. anywhere between 30 and 60 minutes,
 - c. around 90 minutes,
 - d. around 30 minutes.
8. The nurse performing triage said that if the waiting time was longer, the patient
 - a. would be sent back to her GP because she had pain in the left part of her chest,
 - b. would be transferred to another hospital because she had pain in the left part of her chest,
 - c. would be moved to the area where they handle more urgent cases because she had pain under the left part of her chest,
 - d. would be seen by the doctor at once because she had pain in the left part of her chest.
9. When patients tell the nurse "Can you bob me up the queue?", they mean that
 - a. they want the nurse to do her job faster and reduce the waiting time,
 - b. they want the nurse to book a place in the queue for them because they want to leave for a while,
 - c. they want to put someone else in the queue,
 - d. they want to be moved forward in the queue so that they wouldn't have to wait so long.
10. The second patient presented with a fractured hand as a result of
 - a. a fight in the street outside his school,
 - b. a fight with his opponents after a football match,
 - c. a fight with a friend during a theatre play,
 - d. a play fight with his friend.
11. The fractured hand is
 - a. browned and massively bruised,
 - b. bruised and the palm's browned,
 - c. browned and the palm's bruised,
 - d. not browned or bruised at all.
12. The fracture affected
 - a. metacarpals between the middle finger, the ring finger and the wrist,
 - b. one metacarpal between the knuckles of the ring finger and the wrist,
 - c. all the metacarpals in his hand,
 - d. none of the metacarpals, just the two knuckles of his hand.

Total _____/12

WRITING 2

On the basis of the information given below differentiate between tachycardia and bradycardia. (150 – 200 words)

	Tachycardia	Bradycardia
	changes in the normal heartbeat	
Patient talk	an abnormally rapid heartbeat	an abnormally slow heartbeat
Range	resting or sleeping heart rate rises above the normal range of 60 to 100; beats per minute one or both of the chambers of the heart beats faster than the other	occurs when one or both of the chambers beat slower than 60 beats per minute
Characteristic symptoms	Bounding, fast, thready pulse chest pain, dizziness, and fainting.	Weak and thready pulse Shortness of breath, a drop in blood pressure, and extreme fatigue
Cause	congenital abnormalities, heart disease, and some types of lung diseases, substance abuse, a reaction to some medications, anxiety or stress, haemorrhage	electrolyte imbalances, hypothyroidism, blood pressure medication side effects, heart block
Treatment	anti-arrhythmic medications that slow down the heartbeat and cardioversion, which uses electrical pulses to reset the rhythm of the heart	a <u>pacemaker</u> implant and treating underlying conditions causing a slow heart rate

KEY

PAPER 1 - READING

READING 1

Task 1.

1. F
2. T
3. F
4. T
5. F
6. F
7. F
8. F
9. T
10. F

Task 2.

- I. C
- II. C
- III. C
- IV. B
- V. D

READING 2

1. C
2. A
3. C
4. B
5. D
6. A
7. A
8. B
9. B
10. C
11. A
12. B
13. C
14. D
15. A
16. C
17. C
18. D
19. B

20. A
21. A
22. C
23. B
24. C
25. D

PAPER 2 - LISTENING

LISTENING 1

KEY – TASK 1

1. The average child affected by Crohn's disease is aged between 12 and 14.
2. The mechanism that triggers the erosion of the digestive system and causes symptoms like pain and diarrhea is quite well understood.
3. In almost 25% of patients with Crohn's disease, the harmless intestinal microbiota may be held responsible for mounting the immunological response to some atypical microorganisms in the intestine.
4. The doctors haven't been able to establish the source of the disease in three quarters of patients.
5. Doctors and scientists are trying to find out which microorganisms seem to be responsible for the inflammation.
6. It has not been established what brings about the disease, which makes it impossible to determine whether the abnormal intestinal microbiota is the cause or the result of the inflammation.
7. Some research seems to suggest that the administration of antibiotics to young children may put them at risk of many disorders, including Crohn's disease.
8. In some parts of the UK, the number of people affected with this condition has doubled over the last years.
9. Crohn's disease may affect any part of the gastrointestinal system, from the oral cavity to the anus.
10. The aim of the treatment is to reduce the inflammatory reactions of the immunological system.
11. In order to improve the condition of the intestines in children with Crohn's disease, children are administered special liquid food directly to their bowel, and they mustn't eat anything else for as long as several weeks.
12. Enteral nutrition is a good way to induce subsiding of symptoms and improving the overall condition of patients.
13. The majority of medications used in Crohn's disease influence the immune system.
14. Biological treatment makes it possible for affected children to avoid being operated on.
15. Biological medications trigger the reduction of the symptoms of the disease, but they do not allow them to disappear in the long run.

KEY – TASK 2

- Reducing your immunological reaction – *suppressing your immune response*

- People whose genome makes them more likely to develop the disease – *genetically predisposed individuals*
- Those who develop the disease before turning 18 years of age – *patients present under the age of 18*
- The first years of the child's life in which their organism develops – *early formative years of life*
- The last part of the digestive system – *bottom end*
- The intestinal microbiota – *gut flora*
- The very basic reason for something – *underlying cause*
- To avoid operation – *to postpone (invasive) surgery*
- We don't know the cause of – *we're not clear what the trigger is*
- Used mainly in children - *predominantly*

LISTENING 2

- 1B
- 2C
- 3D
- 4A
- 5B
- 6A
- 7A
- 8C
- 9D
- 10D
- 11C
- 12A