

平成 31 年度 個別学力試験問題

英 語

(医 学 科)

解答時間 80 分

配 点 100 点

注意事項

1. 試験開始の合図があるまで、この問題冊子の中を見てはいけません。
2. 受験番号及び氏名を解答用紙の所定の欄に記入しなさい。
3. 解答は解答用紙の指定されたところに横書きで記入しなさい。
4. 試験時間中に問題冊子及び解答用紙の印刷不鮮明、ページの落丁及び汚損等に気が付いた場合は、手を挙げて監督者に知らせなさい。
5. 問題冊子は持ち帰ってもかまいません。

1

次の英文を読んで、以下の問いに答えなさい。

One of the greatest figures in the history of British hospitals in the twentieth century was not a doctor, but a former steelworker from Glasgow who later became a social worker and then a film maker. His name was James Robertson.

Robertson started his researches into pediatric wards in Britain in 1948. At that time, sick children were routinely separated from their parents for long periods of time. Having parents in hospital was regarded as disruptive, and staff were upset hearing children cry when mothers arrived or left. Visits were restricted and in some cases forbidden. Here, for example, is a list of the visiting times in some of London's main hospitals from around that time, published in a survey in the Spectator:

- Guys Hospital: Sundays 2-4 p.m.
- St Bartholomew's: Wednesdays 2-3:30 p.m.
- St Thomas's: first month no visits, but parents could see their children asleep 7-8 p.m.
- Westminster: Wednesdays 2-3 p.m.
- West London: no visiting
- Charing Cross: Sundays 2-3 p.m.
- London Hospital: under three years old, no visits but parents could see through partitions, over three years old, twice weekly

The story of Robertson's campaign to change this state of affairs sheds no glory on hospitals, doctors or the British establishment. His meticulous researches⁽¹⁾ into the effects of separation on children—distrust, rejection, bed-wetting, soiling, anxiety and rages—were dismissed as sensational. The film he made with his wife, Joyce, to demonstrate these effects was shown at the Royal Society of Medicine in 1952 to unanimous derision, and to accusations of rigging. BBC producers blocked his attempts to present it on television. When they finally relented in 1961 and allowed him to show some excerpts, Robertson defied⁽²⁾ their orders by turning to the live camera to explain that parents had a legal right to stay with their children regardless of any⁽³⁾ 'official' rules. His courage inspired a group of mothers to form the National Association for the Welfare of Children in Hospital, one of the most effective pressure groups ever. As a result of their work, there are probably no pediatric wards in Britain nowadays with restrictions on parental visiting.

I find Robertson's story inspiring but I am also outraged by it. The list of hospital visiting times, in particular, is heartbreaking. It makes me go hot and cold with anger, misery and a

retrospective sense of helplessness. The emotional effects of such institutionalized brutality are too painful to hold in the imagination. How on earth can it have happened? How can people have ever believed that it was a good thing? How could doctors and nurses have been so blind to the distress they were causing, and so uncritical of themselves?

The answer, of course, is that the rules were familiar, and familiarity breeds conformism. As Robertson found, protests against convention can invite ridicule, particularly from the medical profession. We also need to remind ourselves of innumerable other examples of social practices⁽⁴⁾ that were considered humane for considerable periods of time, but that now fill us with horror— including slavery, workhouses, and large mental asylums in remote rural locations.

Which brings us, somewhat uncomfortably, to the question of whether there are any current practices that doctors now accept with complacency, but ought to regard as similarly grotesque. My own nomination for such a practice would be the ward round.

Before you accuse me of descending from the sublime to the ridiculous, let me explain that I have been a hospital in-patient myself several times, so I know from experience what it feels like to lie horizontally, in ill-fitting hospital pajamas, while small groups of fully dressed and vertical doctors (some of whom have never introduced themselves) stand over you briefly to conduct a consultation about matters of life and death, within earshot of patients in neighboring beds. More distressingly, I have seen my wife subjected to the same humiliation by groups of mainly male colleagues, while I was dismissed from her bedside. And when my parents were alive, I observed each of them reduced to a state of humiliation, bewilderment, and more or less utter disempowerment each time they were in hospital and were victims of this uncaring but unchallengeable ritual.

In all these situations, I have wondered how it could still be permissible for patients to pass through their entire admission to hospital without ever having the basic human dignity of one-to-one meetings with their doctors, sitting in a private space such as a ward office or day room, properly clothed if possible, and with family members present if they wished. I also find it dispiriting that some consultants manage to complete their entire careers without ever engaging in a single medical encounter of this kind with an in-patient (except possibly in their private practices). I am puzzled as to why hospital teams cannot allocate one main doctor to each in-patient so that this can happen.

From the perspective of general practice, confidential encounters between a single doctor and a patient or family are the cornerstone of good medical and emotional care. There seems no reason, beyond professional convention and convenience, why this cannot happen in hospitals⁽⁵⁾ too. Even frail and elderly patients can in most cases be helped to dress properly and to come alone into an office—with the help of a wheelchair if necessary—so that they can disclose their

fears and articulate their questions in relative dignity. For the few who cannot, it is perfectly possible for any doctor to draw up a chair to the bedside on each visit. The medical team can of course still meet, as some already do, to discuss the 'case' quite separately from arranging for one sole doctor to meet the actual person face to face.

I wonder if we will have to wait for a latter-day James Robertson so that this happens, or whether our own profession could seize the initiative in bringing the time-honored but demeaning (6) practice of ward rounds to an end.

[注]

allocate : 割り当てる	articulate : はっきりと話す
asylum : 保護施設	bed-wetting : おねしょ
bewilderment : 困惑, 当惑	brutality : 残忍さ
complacency : 現状に満足しきっていること	conformism : 体制順応主義
cornerstone : 土台, 礎	derision : 冷笑, あざけり
disempowerment : 無力化	dispiriting : 落胆させる
disruptive : 混乱させる	earshot : 聞こえる距離
excerpt : 抜粋, 引用	general practice : 一般診療
grotesque : 奇怪な	humane : 人道的な
humiliation : 屈辱, 恥	institutionalized : 制度化された
meticulous : 几帳面な	outrage : 激怒させる
pediatric ward : 小児科病棟	relent : 態度を和らげる
retrospective : 回顧的な	rigging : 不正操作
soiling : (便などで)下着を汚すこと	steelworker : 製鋼労働者
sublime : 荘厳な	the Spectator : ザ・スペクテイター(週刊誌名)
time-honored : 昔からの, 由緒ある	unanimous : 満場一致の
ward round : 病棟回診	wheelchair : 車いす
workhouse : 救貧院	

問 1 下線部(1)の具体的な内容に合う本文中の連続する英単語 4 語を書き抜きなさい。

問 2 下線部(2)と(6)の本文中の意味に最も近いものを、それぞれア～エの中から 1 つ選び、記号で答えなさい。

(2) defied [ア. delivered イ. obeyed ウ. praised エ. resisted]

(6) demeaning [ア. admirable イ. illegal ウ. shameful エ. valuable]

問 3 ‘official’ rules の内容を具体的に説明しながら、下線部(3)を日本語に訳しなさい。

問 4 下線部(4)を日本語に訳しなさい。

問 5 this の内容を具体的に説明しながら、下線部(5)を日本語に訳しなさい。

2 次の英文を読んで、a～fの〔 〕内の語(句)を正しく並べ替え、本文中の【 (1) 】～【 (6) 】の適切な場所に入れなさい。ただし、文頭に来る語も小文字で示している。解答欄には、a、bなどの記号は書かず、並べ替えた英文を記入すること。

Pam Costa, who lives in Tacoma, Washington, is a 52-year-old woman born with a rare neurological condition called erythromelalgia, otherwise known as “man on fire” syndrome, in which inflamed blood vessels throughout her body are constant sources of pain. Pam wears loose-fitting clothes because fabric feels like a blowtorch against her skin. She sleeps with chilled pillows because the slightest heat makes her limbs feel as if they’re crackling.

Pam takes 50 milligrams of morphine twice a day. A college psychology instructor and the mother of a teenage daughter, she agonizes over her morphine dependency. But if she goes without her medication, her pain becomes unbearable.

A year ago, she went to Las Vegas for a work conference and the plane home got stuck on the tarmac with a mechanical issue. There was no air-conditioning, and the temperature started to rise. With her skin throbbing, Pam persuaded a flight attendant to let her off. “I was so afraid I was going to pass out or throw up or get to where I was immobilized.”

Thanks in part to studies Pam has participated in, scientists have uncovered an unprecedented genetic link. Scores of pharmaceutical researchers are now deep into clinical trials on a new type of drug that would treat Pam and millions of other chronic-pain patients—without the sometimes severe side effects of existing painkillers such as nonsteroidal anti-inflammatory drugs (NSAIDs) and opioids.

If you burn yourself on a stove, it hurts. More specifically, 【 (1) 】 that tell you to stop doing what you are doing and get help. Fortunately, most kinds of acute, or temporary, pain can be treated: Opioids can dull the sting from an incision; anti-inflammatories can mask the discomfort of a sprain.

Chronic pain, on the other hand, never turns off. It can be inflammatory (brought on by diseases such as arthritis) or neuropathic (affecting the nerves, as in some cases of shingles, diabetes, and chemotherapy treatments). Some chronic pain can never be traced to a coherent cause.

That kind of undiagnosable pain creates its own issues. When Pam was a child, she was sometimes accused of having behavioral problems. In school, she’d sneak off to water fountains to wipe down her limbs with cold water. She would dawdle in the deep gutters near her home, the cool, mucky water providing momentary pain relief. One physician said her symptoms were psychosomatic. Then, in 1977, when Pam was 11, a letter from the Mayo Clinic arrived. A cousin had been referred to the medical center after complaining of constant pain. The doctors

there discovered that 29 members of Pam’s extended family appeared to have erythromelalgia. After learning more about Pam’s symptoms, a Mayo researcher told her parents that their daughter had apparently inherited the same problem.

Pam was determined not to pass on her man on fire syndrome. “I had my (fallopian) tubes tied right after my 18th birthday,” she says, a hint of grief filling her voice. “Always, since I was a little girl, [(2)].” When she got married, she and her husband adopted a daughter.

Stephen Waxman was a medical student in the early 1970s when he became fascinated by pain—how people feel it, how the body transmits it, and how, as a future neurologist, he could learn to control it. Later in his career, when his father was in the final stages of agonizing diabetic neuropathy, he became obsessed with helping patients who could find no relief from their pain. “We simply had to do better,” he says.

Today, Dr. Waxman, 72, is the director of the Center for Neuroscience and Regeneration Research at the Yale University School of Medicine. For much of his career, he has been interested in sodium channels—portals that allow charged particles to flow in and out of nerve cells. In particular, he believed that one of those channels, Nav1.7, played a powerful role in how we experience pain.

In his theory, a stimulus triggers the Nav1.7 channel to allow sodium ions to pass through, which then enables messages of stinging, soreness, or scalding to register in the brain. When the trigger subsides, Nav1.7 closes. In those with certain mutations in their Nav1.7 channels, sensations that typically [(3)].

In 2004, Dr. Waxman’s team was searching for subjects with some form of inherited pain so they could determine exactly how the Nav1.7 channel worked to either cause or dampen painful sensations. That same year, scientists in a Beijing lab published the results of their study of a Chinese family afflicted with man on fire, in which they linked the disorder to mutations in a single sodium channel gene, *SCN9A*. When Dr. Waxman spotted the article, he directed his team to find families with erythromelalgia. Pam Costa’s was the first.

Dr. Waxman’s team gathered DNA from 17 of Pam’s cousins, aunts, and uncles who suffered from erythromelalgia and sequenced their genes to find the mutations. Then the team introduced the mutations into DNA that [(4)].

The results proved Dr. Waxman’s theory correct, not only demonstrating that *SCN9A* mutations made Nav1.7 channels more likely to open (meaning harmless stimuli often triggered feelings of pain) but also showing that when those channels opened, they did so for longer, amplifying the feeling of discomfort. “We now had a fully convincing link from Nav1.7 to pain.”

If his team could somehow regulate or even turn off the Nav1.7 channel, they could regulate or turn off how we experience certain kinds of pain.

At Yale, Dr. Waxman and his researchers helped Pfizer test five erythromelalgia patients with a Nav1.7 blocker. Scientists triggered the subjects' pain with heating blankets. [(5)].

There are other, less conventional approaches under way too. At Amgen, a pharmaceutical company in Thousand Oaks, California, scientists discovered that the toxin of a tarantula can target Nav1.7. They've since engineered a synthetic version that's more potent than the original.

There are still obstacles to finding a treatment, such as creating compounds that will allow some pain to register without cutting it off altogether. But many now see a way forward.

[(6)], who have taken part in studies for years.

Pam still remembers meeting Dr. Waxman at Yale in 2011, six years after his team first reached out to her family to study their genes. On a computer, he pulled up an image of the neatly folded amino acids that form a normal person's sodium channel. Then he pulled up another image: The amino acids zigzagged almost off the screen. "This is you," he said.

Her entire life, Pam could only tell others how she felt—she could never show them. Seeing the medical proof of her pain, she says, "was the most validating experience in my entire life."

[注]

afflict : 苦しめる	agonize : 苦しむ
amino acid : アミノ酸	amplify : 増幅する
arthritis : 関節炎	blowtorch : プロトーチ(火炎を噴射する工具)
chemotherapy : 化学療法	chronic : 慢性の
clinical trial : 臨床試験	coherent : 首尾一貫した
crackle : パチパチ音を立てる	dampen : 鈍らせる
dawdle : プラブラ過ごす	diabetes : 糖尿病
diabetic neuropathy : 糖尿病性神経障害	erythromelalgia : 肢端紅痛症
fabric : 繊維	(fallopian) tube : 卵管
fountain : 噴水, 泉	gutter : 排水路
immobilize : 動かなくさせる	incision : 切開
inflamed : 炎症を起こした	medication : 薬
morphine : モルヒネ(強力な鎮痛薬)	mucky : 汚い
mutation : 突然変異	neurological : 神経の
neurologist : 神経科医	neuropathic : 神経障害の
nonsteroidal anti-inflammatory drug : 非ステロイド系抗炎症薬	Pfizer : ファイザー(製薬会社)
opioid : オピオイド(強力な鎮痛薬)	portal : 門
pharmaceutical : 製薬の	psychosomatic : 心身関連の
potent : 効き目がある	shingles : 帯状疱疹
scalding : やけどするほどの熱さ	sodium channel : ナトリウムチャンネル
sneak : コソコソ動く	subside : 低下する, 弱まる
sprain : 捻挫	tarantula : タランチュラ(毒グモの一種)
synthetic : 合成した	throbbing : ズキズキ痛い
tarmac : 滑走路	trigger : 誘因, 誘発する
toxin : 毒	unprecedented : 前例のない
undiagnosable : 診断できない	
validating : 正当性が認められる	

- a . [been / Pam / would / made without / no progress / have / people like]
- b . [anything in / be a / the / I / world / mother more / wanted / than / to]
- c . [taking / decrease in / of the / pain after / described a / patients / the drug / three]
- d . [brain / cells in / the heat and / the nerve / send signals / your hand sense / to the]
- e . [brain are / into extreme / wouldn't / with the / instead translated / pain / register]
- f . [and tracked / channels responded / encoded normal / how these / to stimuli / sodium channels]

3 次の英文の(1)～(8)に入る最も適切な語を語群から選び、必要に応じて適切な形にして、書きなさい。(ただし、同じ語を2度以上使わないこと。)

After graduating from Niagara University Nursing School, Catherine Lyons planned to work at Buffalo Children's Hospital in labor and delivery. Bringing newborns into the world sounded like the most fun a person new to medicine could have.

To guarantee that she got a job, Lyons also interviewed at Roswell Park, and "at first I just hated it," she said. In the early 1970s, the hospital was known as an aging physical plant where too many of its patients died. Yet when Lyons began to talk with the staff, especially the nurses, she met "a group of people who weren't (1) in doing something that was easy. They chose something that was hard and found the satisfaction and reward in that."

Lyons took a job at Roswell Park and planned to (2) a year, until something at Buffalo Children's or elsewhere opened up. Instead, she was there for nearly a quarter century and rose to become chief nursing officer.

Many of the nurses at Roswell Park had been on their way to someplace else, with other goals in mind, when they arrived in Buffalo. While the work could be (3)ing and the hours long, at Roswell Park they often found themselves on par with the doctors. They attended many of the same meetings, sitting at the same table where major decisions about pending treatments and clinical trials were made. At Roswell Park, they (4) that their opinions mattered.

"Our nurses were right there with us on the front lines," James Holland said. "They were with the patients on a daily basis more than us. We would have been fools not to listen to what they had to say. They knew what we were up against better than anybody else."

Brenda Hall went to Sweet Home High School in suburban Buffalo and attended college at Utica State. She almost quit after her first few days in pediatrics at Roswell Park. One of the children she (5) for, a young boy named John, died when she wasn't at the hospital, and the mother told her that one of the last things he did was ask for Hall.

"It was draining," she recalled. "Everyone had times where you wondered what you had gotten yourself into, how you're supposed to really do your job."

Sometimes a nurse's job became more difficult due to the patient's family. During my brother's time at Roswell Park, other kids regularly called home, pleading with their parents to visit them. One father, a dapper-dressed local businessman, buttonholed one of the doctors, asking him, "When do you think my son is going to (6)?"

The doctor looked at him in disbelief.

"It would really help my schedule to know that," the father continued. "Surely, you have some idea."

“I don’t know,” the doctor snapped. “I’m not God.”

As soon as Hall settled into her new job at Roswell Park, Lucius Sinks and other doctors told her to continue her medical training; treatments and procedures were (7)ing in a hurry. As a result, she became one of the first nurse practitioners at the hospital. Hall said the nurses were urged to become experts in particular treatments and procedures. Okie Ok, for example, was known for finding veins, slowly rubbing the skin so another thin ribbon could rise to the surface after other veins had been depleted by frequent injections.

My brother’s favorite was Diana Perry, an occupational therapist. Born and raised in Buffalo, she collected salt and pepper shakers, and marveled at the distances people came for treatment at Roswell Park. “We must be doing right here,” she once told my mother, “because so many people come from miles around to get here.”

Perry thought that Lockport was far away, and places like Albany and Pittsburgh might as well have been on the far side of the moon. She was happy riding the bus down Main Street to work, often (8)ing crayons and colored paper for the patients at Roswell Park.

“She got their minds off their treatments,” Hall said. “The kids just adored her.”

[注]

adore : 憧れる, 敬愛する	buttonhole : (人を)引き止めて話をする
clinical trial : 臨床試験	dapper-dressed : こぎれいな服を着た
deplete : 枯渇させる	draining : 消耗させる
injection : 注射	labor and delivery : 分娩
newborn : 新生児	
nurse practitioner : ナース・プラクティショナー(一定の診断, 治療, 処方などができる看護師)	
occupational therapist : 作業療法士	Okie Ok : 看護師の名前
on par with ~ : ~と同等で	pediatrics : 小児科
pending : 未決定の, 保留の	suburban : 郊外の

[語 群]

bring	care	change	demand
die	discover	interest	stay



