

GIS(グローバル教養学部) A方式

1 限 英語 S (90分)

〈注意事項〉

1. 試験開始の合図があるまで、問題冊子を開かないこと。
2. 解答はすべて解答用紙に記入しなさい。
3. マークシート解答方法については以下の注意事項を読みなさい。

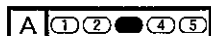
マークシート解答方法についての注意

マークシート解答では、鉛筆でマークしたものを機械が直接読みとって採点する。したがって解答はHBの黒鉛筆でマークすること(万年筆, ボールペン, シャープペンシルなどを使用しないこと)。

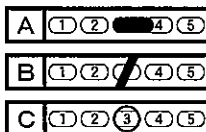
記入上の注意

1. 記入例 解答を3にマークする場合。

(1) 正しいマークの例



(2) 悪いマークの例



枠外にはみださないこと。

○でかこまないこと。

2. 解答を訂正する場合は、消しゴムでよく消してから、あらためてマークすること。
3. 解答用紙をよごしたり、折りまげたりしないこと。
4. 問題に指定された数よりも多くマークしないこと。

[I] For each of 1 to 9, fill in the blanks with the most suitable answer from the choices given.

1. Much of _____ we do know about _____ we make mistakes comes from research in the fields where mistakes cost people their money or their lives.

(i)

(a) where

(b) what

(c) who

(d) when

(ii)

(a) whom

(b) what

(c) which

(d) why

2. A cheaper and safer alternative to chemical control has proved to be highly _____ against several key insect pests.

(a) malicious

(b) effective

(c) preferable

(d) contagious

3. The benefits of selling newspapers in terms of profit are _____ by the potential losses in libel cases.

(a) compensated

(b) unbalanced

(c) outweighed

(d) underwritten

4. The debate over climate engineering is at present confined largely to _____ group of scientists, some of whom want to keep _____ and avoid regulation of their activities.

(i)

(ii)

(i)

(ii)

(a) a far-fetched

(a) the government in the dark

(b) an outlet

(b) the media on the ball

(c) a tight-knit

(c) the public in the lurch

(d) an overseen

(d) the opposition on the rocks

5. The restaurant offers exquisite cocktails, but the real _____ is the slow-roasted shoulder of Hampshire pork.

(a) knock over

(b) knockout

(c) knockabout

(d) knock in

6. She sat at the kitchen table, _____ through a magazine, _____ her time until he showed up.

(i)

(ii)

(i)

(ii)

(a) striking

(a) biding

(b) churning

(b) counting

(c) thumping

(c) at odds with

(d) leafing

(d) tearful of

7. The nature of technology is that it is _____ for (one role) and then
(i) _____ unintended roles.

(ii) _____

(i)

(a) circumstantial

(b) introduced

(c) a mismatch

(d) entitled

(ii)

(a) turns down

(b) trips up

(c) stands in

(d) slips into

8. Uncomfortable with public speaking, he always felt _____
(i) _____

(ii) _____

(i)

(a) highly unlikely

(b) beside himself

(c) ill at ease

(d) beyond reason

(ii)

(a) addressing large audiences

(b) participating in group work

(c) speaking only to others

(d) directing a stage play

9. Potassium is essential for the plant life that provides human beings
with the nutrients _____ good health.

(a) needed for

(b) in need of

(c) necessitating

(d) necessitated

[II] Read the passage and answer the questions.

Blind people who navigate using clicks and echoes, like bats and dolphins do, recruit the part of the brain used by sighted people to see, a new study has found.

While few blind people use echolocation — X — some that do are so good at it that they can use the ability to ^(A) _____, mountain bike and play basketball, said Melvyn Goodale, one of the co-authors of the study published Wednesday.

Goodale, a psychology professor and the director of the Centre for Brain and Mind at the University of Western Ontario, said he was amazed by the abilities of the two men in the study who were completely blind.

“They can tell a flat thing from a convex one. They can tell a bush from a wall, a car from a lamp post,” he said. One of the two subjects, Daniel Kish, 43, could locate objects to within three degrees — “incredibly accurate,” Goodale said. Both Kish and a 27-year-old male subject trained by Kish could also tell which way objects were moving.

Goodale and his research team wanted to find out what was happening in the brain while people like Kish were echolocating. In order to do that, they used a technique called fMRI (functional magnetic resonance imaging), which detects changes in oxygen consumption by different parts of the brain while it is performing a certain task.

For example, if a person is watching something, the visual part of the brain lights up because it uses more oxygen for that task.

The researchers found that when echolocators were listening to their echolocation clicks and echoes, the part of the brain normally used to see lights up.

“The job of understanding the echoes seemed to be the job of this remaining visual cortex,” Goodale said. In fact, when Kish was using

echolocation to _____ moving objects, the part of the brain that is used
(B) to see moving objects lit up.

What's interesting, Goodale added, is that the echoes don't _____
(C) any unusual activity in the part of the brain used for hearing — it isn't
affected by the echoes more than any other sound.

“So it must actually _____ information about the echoes, but then
(D) it passes it onto the visual cortex where it's analyzed,” Goodale said.

Two men who could see and did not use echolocation were also scanned,
and the visual part of their brain did not light up when they heard the
echolocation sounds.

Goodale said the experiment was a challenge to design because fMRI
involves scanning the subjects while they are lying down in a small tunnel.

Because of that, co-authors Lore Thaler and Stephen Arnott created an
experiment designed to _____ echolocation inside the fMRI machine.
(E) They placed microphones in the ears of the echolocators and recorded them
echolocating outside. Then they played the sounds back to them inside the
machine both with and without the echoes.

Goodale said while he found the results very interesting scientifically,
he was most struck by the abilities of the echolocators themselves. “I think
this can be quite a liberating skill for the blind. Not all blind people know
about this and I think if more did and more had an opportunity to learn,
they might find that their ability to understand the world far beyond their
bodies is much better than they think it is.”

1. Fill in the blank

X

 with the most suitable item among choices (a) to (d).

- (a) emitting a sound and then listening for the echo to get information about surrounding objects
- (b) extracting echoes and mimicking them to locate themselves, like people playing sports
- (c) employing an aural strategy developed to help deaf people simulate echoes
- (d) enveloping themselves with a screen of noise that will protect them against potential hazards

2. Fill in each of the blanks (A) to (E) with the most suitable item among choices (a) to (e). Use each choice only once.

- (a) cause
- (b) detect
- (c) extract
- (d) hike
- (e) mimic

3. Which pair of surfaces is Kish *least* likely to be able to distinguish between?

- (a) red and white
- (b) plane and bulging
- (c) solid and permeable
- (d) small and large

- 4 . The brain of an echolocator processes the echolocator's clicks and echoes by
- (a) using fMRI to separate clicks from echoes.
 - (b) storing the oxygen thought to be required for vision.
 - (c) utilizing the part of the brain normally employed for sight.
 - (d) mimicking fMRI.
- 5 . What was difficult about designing the experiment?
- (a) The researchers had to analyze information in the visual cortex.
 - (b) The first two men to undergo the experiment failed to produce results.
 - (c) The echolocators had to experience everything twice.
 - (d) The physical constraints of the fMRI machine made normal echolocation impossible.
- 6 . What did Goodale find particularly interesting about the echolocators?
- (a) their special use of the area of the brain normally used for hearing
 - (b) their development of a skill having practical application
 - (c) their unusual ability to avoid putting strain on the perceptual system
 - (d) their degree of intellectual understanding of the world

[III] Read the passage and answer the questions.

All living polar bears can trace their genetic lineage back to a single, female ancestor — a brown bear from Ireland, who lived around 20,000 to 50,000 years ago. Thanks to climate change in the North Atlantic ice sheets around the time of the last Ice Age, the brown bear and the polar bear existed side by side for a time. In Ireland, it appears that they interbred, leading to a hybridization event that plopped maternal DNA from brown bears into polar bears.

[W] This is a case where a drastic reduction in genetic variation meant the entire gene pool was flooded with just one form of a particular gene, from just one female bear. Researchers could determine this thanks to that oh-so-helpful mitochondrial DNA. This is a maternal portion of the genome that is — unlike most of the nuclear DNA — passed down exclusively from the mother to her ^(P)_____. The sperm's tiny cache of mitochondrial DNA, on the other ^(A)hand, is destroyed upon fertilization.

[X] We've done it with humans too, and found that all living humans descend from one woman in Africa — we call her Mitochondrial Eve.

Previous researchers have suggested that the polar bears' "Eve" lived on the ABC Islands — the Alaskan islands of Admiralty, Baranof, and Chichagof — only 14,000 years ago. But a new international ^(B)_____, led by Beth Shapiro from Penn State University, has found a much earlier inter-breeding event that led to brown bear mitochondrial DNA creeping into the polar bear gene pool.

"We used DNA from living polar bears and DNA from ^(C)_____ around the world," says Mark Thomas, from University College London and co-author of the paper. In all, 242 brown bear and polar bear mitochondrial lineages throughout the last 120,000 years and across multiple geographic ranges were sampled. The team found that the fixation of the

mitochondrial genome likely occurred during or just before the peak of the last Ice Age, possibly as early as 50,000 years ago, and near present-day Ireland.

Those Irish brown bears are now extinct. [Y] This tells us that species aren't always as fixed and tidy as we might hope, and also that "hybridization doesn't always lead to dead ends," says Thomas. The popular idea that hybridizations "dirty" the species isn't necessarily true, and mixing two species together could be good for, or even essential to, the species' survival.

[Z] Earlier this year, Peter Parham, professor of microbiology at Stanford, presented evidence which shows that early Europeans gained many of their genes for battling northern diseases after interbreeding with Neanderthals. There is a _____^(D) that breeding with Neanderthals gave early humans a handy leg-up. Such genetic research also has consequences for the future conservation of species — including the polar bear, which is considered vulnerable, with eight of its 19 subpopulations in decline.

"Scientists should reconsider _____^(E) efforts focused not just on polar bears, but also on hybrids, since hybrids may play an underappreciated role in the survival of certain species," said Beth Shapiro. We are still seeing interbreeding of brown bears and polar bears today, especially with a similar change in the Arctic climate and melting glacial ice, fewer sea-ice days, longer open-water periods during summer, and rising sea levels. In 2006 — the same year that researchers spotted seven brown bears in the polar bear-only Wapusk National Park — a Canadian hunter killed a hybrid, and in 2010 a second hunter killed a half-polar, half-grizzly hybrid, also known as a pizzly bear.

1. Fill in each of the blanks (A) to (E) with the most suitable item from choices (a) to (j). Use each choice only once.

- | | |
|--------------------|------------------|
| (a) fossils | (f) cure |
| (b) death | (g) offspring |
| (c) inheritance | (h) conservation |
| (d) team | (i) disaster |
| (e) classification | (j) possibility |

2. Choose the most suitable sentence from (a) to (d) for each of the blanks [W] to [Z]. Use each choice only once.

- (a) In fact, Thomas finds potential similarities to this in humans.
- (b) This event probably led to a fixation of the modern polar bear's mitochondrial DNA.
- (c) They died out roughly 9,000 years ago.
- (d) This allows us to connect the maternal lines and trace back a species' genetic lineage through the mother's line.

3. What first suggested to scientists that all living polar bear lineages can be traced to a single Irish brown bear?

- (a) the lack of variation in the polar bear gene pool
- (b) the migration during the last Ice Age of an Irish bear to the North Atlantic ice sheets
- (c) the discovery of similar traces of solar radiation in the DNA of brown and polar bears
- (d) the destruction of mitochondrial DNA upon fertilization

4. What does oh-so-helpful refer to here?
(P)
- (a) Polar bears can assist researchers by providing mitochondrial DNA.
 - (b) Researchers are driven to discover the qualities of mitochondrial DNA.
 - (c) The hybridization of new bear species is facilitated by mitochondrial DNA.
 - (d) The inherent characteristics of mitochondrial DNA allow researchers to make inferences confidently.
5. Which one of the following events is *not* a factor contributing to the creation of pizzly bears?
- (a) rising sea levels driven by global warming
 - (b) colder winters and shorter summers
 - (c) melting glacial ice due to global climate change
 - (d) shorter cold periods and longer summers
6. Which one of the following seems likely to be an evolutionary benefit of hybridization?
- (a) The pizzly bear is better adapted to high sea levels than either the polar or the grizzly bear.
 - (b) Neanderthals provided humans with resistance to northern diseases.
 - (c) Polar bears ensured the long-term survival of the Irish brown bear.
 - (d) Conservation of species is making the polar bear vulnerable.

7. Which one of the following points is the author of the article *not* trying to make?
- (a) The polar bear outlived the Irish brown bear due to the destruction of mitochondrial DNA.
 - (b) Given the role they can play in species survival, protection of hybrids should be part of any conservation effort.
 - (c) It is possible to trace a species' genetic lineage back to its original ancestor.
 - (d) Similarities exist between bears and humans in terms of the potential benefits of hybridization.

[IV] Read the passage and answer the questions.

Sword-waving mobs rule the streets. Criminals lurk in every corner. This is New York's infamous Five Points slum as seen in Martin Scorsese's movie *Gangs of New York*. But is it the real Five Points?

Digging through layers of sediment and stacks of records, archaeologists and historians are unearthing a truer picture of the neighborhood, as "a world of vice and misery." In the 1840s waves of poor Irish immigrants arrived in New York City with the wherewithal for only the most miserable housing: the run-down tenements of Five Points, a roughly five-square-block area in Manhattan. Families lived crammed into one or two dark rooms, and Five Points became a synonym for misery and the darkest of crime. [W] Yet it drew "slumming" middle-class tourists — escorted by police — to see if the sensational tales they had read were true.

What was written at the time about the Five Points, says archaeologist Rebecca Yamin, a desire to sell newspapers or by fear. Yamin led the team that excavated and analyzed 850,000 Five Points artifacts. [X] "Trying to make the best of a bad situation," Yamin says, "they did what they had to do to build a life for their families."

Historian Tyler Anbinder agrees. "Most of the inhabitants had real, legal jobs. Many were shoemakers, tailors, masons, grocers and laborers. They were saving money, trying to improve their lives and bring loved ones over from Europe."

Martin Scorsese based his movie *Gangs of New York* on Herbert Asbury's 1927 book *The Gangs of New York: An Informal History of the Underworld*. But there was little that Asbury, who , got right, according to some historians. The perception of Five Points as a place of constant danger is exaggerated, Anbinder claims. "The book *The Gangs of New York* says one tenement had a murder a day. In the period of time

Asbury was writing about, there was barely a murder a month in all of New York City," he says.

Herbert Asbury interpreted the Five Points gangs as the precursors of 1920s organized-crime mobs. Scorsese, the director of Mafia classics such as *Goodfellas*, seizes on this idea in *Gangs*. However, according to Anbinder, that is one of the problems with the movie.

"The Five Points gangs were political," he says. "They met to promote and to fight for their candidates. Nearly every move [D] that candidate get into public office. The candidate, once elected, would bestow steady-paying jobs and city funds on the voters in his area." The effort paid off. [Y] But the squalor remained, and the movie, most critics agree, accurately shows the unsanitary and crowded conditions, the poverty and neglect.

In reconstructing Five Points, production designer Dante Ferretti worked from archival photographs, records and illustrations. He built using the original building materials—brick, cobblestones and wood. And then he had his crew age them with plaster and paint. [Z]

Even Anbinder gives the *Gangs of New York's* version of Five Points credit for overall accuracy: "The general theme of the movie is exactly right. When the Irish first came to America they were persecuted and they [E] for their fair share."

Besides, as they say, it's only a movie. "Scorsese was out to make a dramatic statement," Anbinder acknowledges, "not to make a documentary."^(Q)

1. Fill in each of the blanks A to E with the most suitable item from choices (a) to (j). Use each choice only once.

- | | |
|-------------------------------------|-------------------------------------|
| (a) was on the edge of an explosion | (f) reported in its day |
| (b) literally had to fight | (g) assumed he knew nothing |
| (c) eating very well | (h) the entire collection destroyed |
| (d) was designed to help | (i) did scant original research |
| (e) to research period furnishings | (j) was colored by |

2. Choose the most suitable sentence from (a) to (e) for each of the blanks [W] to [Z]. Use each choice only once.

- (a) Spurred on by the Potato Famine of the 1840s, thousands of Irish arrived in New York City.
- (b) Taken together with the historical records, they paint a picture of hard-working immigrants.
- (c) Outsiders looked at this neighborhood — the unsanitary conditions; street people doing illegal business — and it was frightening.
- (d) Gaining both influence in city government and better livelihoods, the Irish gladly gave up Five Points to newer immigrants.
- (e) "In the end," he says, "everything was correct."

3. Because they had the wherewithal for only the most miserable housing, ^(P) the new immigrants

- (a) could not have afforded to live in better accommodations.
- (b) were crammed into dark rooms rented from street gangs and criminals.
- (c) invited loved ones from Europe to share in expenses and save money.
- (d) sold newspapers to "slumming" tourists to help make ends meet.

4. The expression it's only a movie describes a film that
(Q)
- (a) tells a story in a believable way.
 - (b) would not be popular with film audiences.
 - (c) gets its story from reliable sources.
 - (d) should not be mistaken for reality.
5. One of Anbinder's arguments against Herbert Asbury and his book is that he
- (a) under-reports the extent of the danger and crime in Five Points.
 - (b) never visited a tenement to see the squalid conditions.
 - (c) wrongly concludes that the Five Points gangs were the forerunners of organized crime.
 - (d) influenced Martin Scorsese to steal the idea for *Goodfellas* from *Gangs*.
6. Which one of the following is the most suitable title for the passage?
- (a) Asbury and His Informal History of the Five Points
 - (b) Where Scorsese Got Five Points Right
 - (c) Five Points: Manhattan's Most Infamous Slum
 - (d) Scorsese and Historian See Eye to Eye on Five Points
 - (e) The Five Points Underworld: Fact vs. Fiction

[V] Read the passage and answer the questions.

The world has reached a point of hyper-urbanization. 2007 marked the year when more than half the global population became “urban,” not “rural.” Indeed, this is the era of the “mega-city” — the metropolis of 10 million plus. In 1950, only Tokyo and New York met that threshold. Today there are 20 mega-cities, including Mexico City, Karachi, Manila, Dhaka, Lagos, Jakarta and Chongqing.

This type of drastic population shift isn't new. During the Industrial Revolution, concentrations of people in U.S. and European cities were part and parcel of a factory economy. But that economic and technological ^(A) progress came at a price ^(P) — decades of filthy slums, high child mortality, and widespread epidemic disease. This time around, with cities ten times bigger and demand for workers uncertain, the costs could be significantly larger.

In general, an optimist might cheer urbanization. The city, after all, is the hub of culture, a magnet that draws artists, writers, musicians — the place where creative spirits create. Great cities have ballet troupes, opera companies, orchestras. The city is, likewise, the hub of industry, generating the bulk of most countries' wealth. Most important, the city is the hub of ideas. The mingling of people spurs the intellectual innovation that fuels thriving societies, at least in the developed world.

But urbanization historically also has created an impoverished ^(B) underclass of the marginally employed, or unemployed, living in cruel despair.

Cholera, typhoid, and influenza devastated 19th and early 20th century urban populations. Yet in time those horrors faded as infrastructure ^(C) — clean water, enclosed sewers, public education, medical facilities — was created. Eventually, the 19th century cities developed into incredibly

livable places.

Cities in the United States and Europe still have dense clusters of the poor, to be sure. They live in cramped housing with few of the amenities^(D) found in most homes, but they no longer starve or die from cholera. Immigrants who crowd into these developed cities believe that however desperate their situation, their children will be better off.

The newly risen mega-cities in the developing world, though, can dishearten even the most persistent optimist. They are made up of ever growing masses of people, drawn not so much by the promise of prosperity as by the hope of survival.

It is internal migrant populations, however, that are pouring into most of these exploding urban areas. In China, for instance, 150 million people have left their rural homes in the last ten years, leaving a dearth^(E) of workers in the agricultural sector. Political and war refugees, too, flow in steadily. A fortunate few may realize a steady income, maybe even own property, but most live in slums with filthy water, political chaos and nonexistent city services.

It is this huge, desperate underclass that is filling mega-cities. Without some action from nations and international institutions, these mega-cities will grow larger and more desperate. Money helps, but these developing countries need public policies that promote property ownership, increase access to credit and enhance government transparency.

There is no quick solution to improving the lives of billions of people; it took more than 50 years to begin to deal with the slums of the 19th century. But there is an urgency^(F) to today's task. The slum dwellers of Lagos and Manila and Karachi are part of the global economy, closely connected to the rest of the world. Their misery will spill beyond their borders, and if that happens, our urban age may become a global nightmare.

1. Choose the most suitable definition for each of the underlined items (A) to (F) from choices (a) to (l). Use each choice only once.

- | | |
|--|--|
| (a) made separate from | (g) excessive amount |
| (b) frightening situation | (h) need for immediate attention |
| (c) destitute and needy | (i) having much money |
| (d) medical services | (j) basic city services and institutions |
| (e) features that provide comfort
and convenience | (k) insufficient number |
| (f) essential feature | (l) strongly built |

2. Which of the following is *not* mentioned as a positive aspect of cities?

- (a) They cultivate art and culture.
- (b) They generate economic growth.
- (c) They encourage creative thinking.
- (d) They guarantee a steady income.

3. Choose the sentence that is closest in meaning to: But that economic and technological progress came at a price. (P)

- (a) The prices charged for new technology put it out of reach of most citizens.
- (b) Along with economic and technological development, urbanization also brought problems.
- (c) Urbanization required significant growth in both the economy and technology.
- (d) As the economy and technology developed, prices began to fall.

- 4 . What is the primary reason for the population growth of mega-cities?
- (a) movement from rural areas to the city
 - (b) immigration from developing countries
 - (c) consolidation of many small cities
 - (d) increased birthrate among urban families
- 5 . Which *three* of the following are examples of programs suggested by the author to improve life in new mega-cities?
- (a) decreased healthcare costs for elderly citizens
 - (b) public access to government records
 - (c) retraining programs for the unemployed
 - (d) tax relief for first-time home owners
 - (e) low-interest loans for people starting a new business
 - (f) construction of a professional performing arts center
- 6 . Which of the following statements best summarizes the author's position on mega-cities in developing countries?
- (a) Technological development is the best way to build their economies.
 - (b) They should be made into centers of art and culture.
 - (c) A diversity of strategies must be used to alleviate their persistent poverty.
 - (d) Their populations should be reduced to prevent a global crisis.