

SECTION II

Time—35 minutes

23 Questions

Directions: Each set of questions in this section is based on a scenario with a set of conditions. The questions are to be answered on the basis of what can be logically inferred from the scenario and conditions. For each question, choose the response that most accurately and completely answers the question and mark that response on your answer sheet.

Questions 1–6

Six speakers—Jacobs, Kennedy, Lewis, Martin, Navarro, and Ota—will lecture at an upcoming two-day conference, held on a Thursday and Friday. Lectures will be given at 1:00, 2:00, and 3:00 each day. Each speaker will lecture exactly once, and only one speaker will lecture at a time. The schedule for the conference must conform to the following conditions:

Jacobs lectures at 1:00.

Martin and Navarro lecture on the same day as each other.

Lewis and Ota do not lecture on the same day as each other.

If Lewis lectures on Friday, Lewis lectures at 1:00.

1. Which one of the following could be the schedule for the conference?

- (A) Thursday: 1:00 Jacobs; 2:00 Kennedy; 3:00 Ota
Friday: 1:00 Martin; 2:00 Navarro; 3:00 Lewis
- (B) Thursday: 1:00 Jacobs; 2:00 Lewis; 3:00 Kennedy
Friday: 1:00 Ota; 2:00 Martin; 3:00 Navarro
- (C) Thursday: 1:00 Kennedy; 2:00 Lewis; 3:00 Martin
Friday: 1:00 Jacobs; 2:00 Navarro; 3:00 Ota
- (D) Thursday: 1:00 Lewis; 2:00 Kennedy; 3:00 Ota
Friday: 1:00 Jacobs; 2:00 Martin; 3:00 Navarro
- (E) Thursday: 1:00 Navarro; 2:00 Martin; 3:00 Ota
Friday: 1:00 Lewis; 2:00 Jacobs; 3:00 Kennedy

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2. If Martin lectures at 1:00, then any of the following could be true EXCEPT:

(A) Jacobs lectures on Thursday.
(B) Kennedy lectures on Friday.
(C) Lewis lectures on Friday.
(D) Martin lectures on Thursday.
(E) Navarro lectures on Friday.

3. Which one of the following is a pair of speakers who CANNOT lecture on the same day as each other?

(A) Jacobs and Navarro
(B) Jacobs and Ota
(C) Kennedy and Lewis
(D) Lewis and Martin
(E) Navarro and Ota

4. If Kennedy lectures at 3:00 on Friday, which one of the following must be true?

(A) Jacobs lectures at 1:00 on Thursday.
(B) Lewis lectures at 1:00 on Friday.
(C) Martin lectures at 1:00 on Thursday.
(D) Navarro lectures at 2:00 on Thursday.
(E) Ota lectures at 2:00 on Friday.

5. Which one of the following speakers CANNOT lecture at 1:00?

(A) Kennedy
(B) Lewis
(C) Martin
(D) Navarro
(E) Ota

6. Which one of the following, if substituted for the condition that Lewis and Ota do not lecture on the same day as each other, would have the same effect in determining the schedule for the conference?

(A) Jacobs and Kennedy lecture on the same day as each other.
(B) Kennedy and Ota lecture on the same day as each other.
(C) Navarro and Ota lecture on the same day as each other.
(D) Jacobs and Martin do not lecture on the same day as each other.
(E) Kennedy and Navarro do not lecture on the same day as each other.

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Questions 7–12

An art auction will feature exactly six paintings, each by a different artist—Joysmith, Kahlo, Nieto, Rothko, Sugimoto, and Villa. Each painting will be auctioned separately, in an order consistent with the following:

The Joysmith cannot be auctioned immediately before or immediately after the Villa.

The Villa must be auctioned earlier than the Kahlo, and the Kahlo must be auctioned earlier than the Sugimoto.

The Nieto must be auctioned second or third.

The Rothko must be auctioned earlier than the Nieto.

7. The earliest that the Kahlo could be auctioned is

- (A) first
- (B) second
- (C) third
- (D) fourth
- (E) fifth

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8. The Joysmith CANNOT be auctioned
- (A) first
 - (B) second
 - (C) third
 - (D) fourth
 - (E) fifth
9. The Kahlo must be the fourth painting auctioned if which one of the following is true?
- (A) The Joysmith is auctioned fifth.
 - (B) The Nieto is auctioned third.
 - (C) The Rothko is auctioned second.
 - (D) The Villa is auctioned first.
 - (E) The Villa is auctioned second.
10. How many of the paintings are there that could be the one auctioned fifth?
- (A) one
 - (B) two
 - (C) three
 - (D) four
 - (E) five
11. If the Villa is auctioned fourth, then how many of the paintings are there that could be the one auctioned second?
- (A) five
 - (B) four
 - (C) three
 - (D) two
 - (E) one
12. If the Sugimoto is auctioned earlier than the Joysmith, then which one of the following must be true?
- (A) The first painting auctioned is the Rothko.
 - (B) The second painting auctioned is the Rothko.
 - (C) The second painting auctioned is the Villa.
 - (D) The third painting auctioned is the Nieto.
 - (E) The fourth painting auctioned is the Kahlo.

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Questions 13–17

Every year, a mining company dispatches an engineering team to work for three months at Grayson mine and for three months at Krona mine. All six of the months occur from March to November. In months when it is not at a mine, the team works at company headquarters. The team's schedule also conforms to the following constraints:

The team must work for at least one month at headquarters between any two months working at different mines.

The team cannot work at the same mine for more than two months in a row.

The team must work at Grayson mine in August.

The team must work at Krona mine in October.

13. Which one of the following could be an acceptable schedule for the team from June through October?

- (A) June: Grayson; July: Grayson; August: Grayson; September: headquarters; October: Krona
- (B) June: Grayson; July: headquarters; August: Grayson; September: headquarters; October: Krona
- (C) June: Grayson; July: headquarters; August: Krona; September: headquarters; October: Krona
- (D) June: headquarters; July: Grayson; August: Grayson; September: headquarters; October: Grayson
- (E) June: Krona; July: Krona; August: Grayson; September: headquarters; October: Krona

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14. Which one of the following is a month in which the team must work at Krona mine?

(A) March
(B) May
(C) June
(D) September
(E) November

15. Which one of the following must be true?

(A) The team works at Grayson mine in June.
(B) The team works at Grayson mine in July.
(C) The team works at headquarters in June.
(D) The team works at headquarters in September.
(E) The team works at Krona mine in May.

16. If the team works at Grayson mine in May, which one of the following could be true?

(A) The team works at Grayson mine in March.
(B) The team works at Grayson mine in April.
(C) The team works at Grayson mine in June.
(D) The team works at Krona mine in April.
(E) The team works at Krona mine in June.

17. If the team works at Grayson mine in July, which one of the following could be true?

(A) The team works at Grayson mine in April.
(B) The team works at Grayson mine in June.
(C) The team works at headquarters in May.
(D) The team works at Krona mine in March.
(E) The team works at Krona mine in June.

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Questions 18–23

A medical clinic is assigning doctors to shifts for the next seven days, Sunday through Saturday, with exactly one doctor assigned to each day. Six doctors—Graham, Herrera, Koppel, Leedom, Nelson, and Park—will be assigned, each doctor assigned to at least one day, subject to the following conditions:

The doctor assigned to Sunday must also be assigned to Saturday.

Graham must be assigned to exactly one day.

The day to which Graham is assigned must be immediately before or immediately after a day to which Koppel is assigned.

Herrera cannot be assigned to a day immediately before or immediately after a day to which Nelson is assigned.

Park must be assigned to Tuesday.

18. Which one of the following is an acceptable assignment for the doctors, listed in order from Sunday through Saturday?

- (A) Herrera, Graham, Park, Leedom, Nelson, Koppel, Herrera
- (B) Herrera, Leedom, Park, Nelson, Graham, Koppel, Leedom
- (C) Herrera, Nelson, Park, Graham, Koppel, Leedom, Herrera
- (D) Leedom, Herrera, Park, Koppel, Graham, Nelson, Leedom
- (E) Leedom, Park, Herrera, Graham, Koppel, Nelson, Leedom

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19. If Nelson is assigned to Sunday, which one of the following must be true?

- (A) Herrera is assigned to Wednesday.
- (B) Herrera is assigned to Thursday.
- (C) Koppel is assigned to Thursday.
- (D) Koppel is assigned to Friday.
- (E) Leedom is assigned to Wednesday.

20. If Koppel is assigned to Thursday, then any of the following could be true EXCEPT:

- (A) Herrera is assigned to Friday.
- (B) Leedom is assigned to Sunday.
- (C) Leedom is assigned to Wednesday.
- (D) Nelson is assigned to Sunday.
- (E) Nelson is assigned to Wednesday.

21. If Leedom is assigned to Wednesday, which one of the following could be true?

- (A) Graham is assigned to Monday.
- (B) Herrera is assigned to Sunday.
- (C) Koppel is assigned to Friday.
- (D) Nelson is assigned to Sunday.
- (E) Nelson is assigned to Thursday.

22. If Leedom is assigned to Thursday, which one of the following must be true?

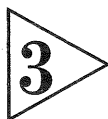
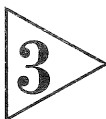
- (A) Graham is assigned to Monday.
- (B) Herrera is assigned to Wednesday.
- (C) Herrera is assigned to Friday.
- (D) Koppel is assigned to Sunday.
- (E) Nelson is assigned to Monday.

23. Any of the following could be true EXCEPT:

- (A) Graham is assigned to Friday.
- (B) Herrera is assigned to Sunday.
- (C) Herrera is assigned to Friday.
- (D) Koppel is assigned to Sunday.
- (E) Leedom is assigned to Friday.

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IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.
DO NOT WORK ON ANY OTHER SECTION IN THE TEST.



SECTION III

Time—35 minutes

26 Questions

Directions: Each set of questions in this section is based on a single passage or a pair of passages. The questions are to be answered on the basis of what is stated or implied in the passage or pair of passages. For some questions, more than one of the choices could conceivably answer the question. However, you are to choose the best answer; that is, choose the response that most accurately and completely answers the question and mark that response on your answer sheet.

Along with Egypt and Sumer, the third major early Bronze Age civilization was the Indus Valley civilization, which flourished from 2600 B.C. to 900 B.C. In geographic size, the Indus Valley

- (5) civilization was the largest ancient urban civilization, bigger than pharaonic Egypt. Centered on the Indus River and the now dry Ghaggar-Hakra River, it comprised about 1,400 settlements across what is now Pakistan, Afghanistan, and northwestern India.
- (10) The Indus Valley civilization was long considered archaeologically uninteresting because of its ordinary urban architecture and lack of palaces or citadels, but recent excavations show the civilization to be without parallel in history, displaying characteristics not elsewhere united in a single civilization.

The Indus Valley people, masters of urban planning, built brick cities on flood-proof terraces with grids of long, straight streets and the first urban sewer systems, made of masonry. No signs of dominant

- (20) rulers have been found, and the cities' living quarters show little sign of class distinction, suggesting that their system of government was, at least in part, democratic. The civilization also apparently thrived without armies—there is, for example, no evidence of weapon production.

The Indus Valley people were the first to cultivate rice and cotton, and they developed a carefully organized agricultural system to produce and distribute food. In addition, the Indus Valley civilization was one of the ancient world's top traders. Examples of its standardized weights have been found in many harbors around the Arabian Sea, and Sumerian tablets inscribed in 2300 B.C. provide evidence that the Indus Valley people maintained trade with Mesopotamia.

- (35) The causes of the civilization's decline, however, are not certain, and this has produced the most contention among scholars. A long-standing theory, one that today still inhabits history books, was proposed by British archaeologist Mortimer Wheeler in the 1920s and points to a final massacre by marauding Indo-Aryan invaders. But, in addition to a lack of written evidence of such an event in any ancient Indian records, there is no archaeological evidence of battles within the cities. In fact, new excavations show that Indo-Aryans were not even in the region at the time the massacre was alleged to have taken place. Archaeological evidence also shows a later resurgence of the civilization a substantial distance to the south of its original location. This suggests that the Indus Valley people most likely relocated for catastrophic environmental reasons, with

the large empire disintegrating into many regional cultures. Severe drought, of which there is evidence, may have made some lands unfarmable. Without

- (55) enough grain to feed the large urban populations, many of the Indus Valley civilization's large cities would probably have been abandoned. Or, a massive earthquake in this seismically volatile region may have changed the course of rivers and disrupted many cities, spurring a migration of refugees to the countryside.

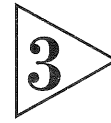
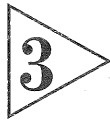
1. Which one of the following most accurately states the main point of the passage?

- (A) Recent evidence sheds new light on the Indus Valley civilization and calls into question some of the views held previously by archaeologists regarding its significance and decline.
- (B) Bronze Age civilizations, including that of the Indus Valley, have not been properly recognized for their cultural achievements.
- (C) The Indus Valley civilization played an important role in the evolution of democracy and modern agriculture.
- (D) The Indus Valley civilization is a historically significant culture, but there is not enough evidence to draw legitimate conclusions about the cultural practices of its people.
- (E) Certain long-held assumptions about the decline of the Indus Valley civilization exemplify how scholars can be led to incorrect conclusions by incomplete data.

2. Which one of the following is NOT cited in the passage as a characteristic of the Indus Valley civilization?

- (A) It was geographically the largest of the major Bronze Age civilizations.
- (B) Its people cultivated rice.
- (C) Its people were generally nomadic.
- (D) It was a major trader.
- (E) It was spread across an area that is now part of three nations.

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3. Based on the passage, which one of the following most accurately describes the author's stance regarding Wheeler's theory?
- (A) enthusiastic appreciation of its contributions to the field of archaeology
 - (B) grudging approval of those aspects of the theory that have not been refuted by recent research
 - (C) slight disagreement with its assumptions, mixed with respect for its venerable status
 - (D) offhanded dismissal of it as a theory not worthy of scholarly attention
 - (E) unambiguous rejection of it in light of newly conducted excavations
4. Which one of the following is cited in the passage as evidence that directly counters Wheeler's theory?
- (A) The Indus Valley is a seismically volatile region.
 - (B) There are no findings that indicate battles within Bronze Age Indus Valley cities.
 - (C) There is evidence of severe drought in the Indus Valley at the time of the Bronze Age.
 - (D) No signs of dominant rulers of the Indus Valley civilization have been found at excavation sites.
 - (E) The Indus Valley people practiced agriculture.
5. The author would be most likely to agree with which one of the following statements?
- (A) Because the Indus Valley region is prone to earthquakes, it is most likely that an earthquake destroyed the Indus Valley civilization.
 - (B) Only a disaster as catastrophic as an earthquake would have caused the demise of a civilization as sophisticated as the Indus Valley civilization.
 - (C) Archaeologists' understanding of the decline of the Indus Valley civilization would benefit from a search for signs of earthquake damage in its cities.
 - (D) The cities of the Indus Valley civilization should have been better prepared for the possibility of a major earthquake.
 - (E) The demise of the Indus Valley civilization was most likely caused by the catastrophic alteration of the courses of its major rivers.
6. The author would be most likely to agree with which one of the following statements about archaeological investigations into the Indus Valley civilization?
- (A) Archaeological data on the civilization were controlled by a small group of scholars for many years, leading to unfounded conclusions.
 - (B) It is only in recent years that scholars have gathered evidence sufficient to enable them to reach credible conclusions regarding the civilization.
 - (C) The Sumerian tablets that provide evidence of trade with the civilization contain the only known references to the civilization in ancient written records.
 - (D) While an adequate amount of archaeological data on the civilization has existed for many decades, most of it has been misinterpreted.
 - (E) The most recent archaeological investigations into the civilization are part of a broader trend in archaeology to avoid overreliance on written evidence.

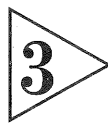
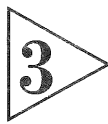
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Film scholar David Bordwell refers to the years 1917–1960 as the classical era of filmmaking in Hollywood. Bordwell defines the era's style as being governed by straightforward narrative considerations, i.e., the need to follow well-defined characters through a chronological sequence of events, or plot. The technical elements of filmmaking—camera movement, lighting, editing, and sound—are all employed to tell a realistic story, one in which the world of the story is self-sufficient and recognizably related to our own. Devices that draw attention to the film as film rather than to the story are avoided.

- (5) Within this definition, the musical films of the 1930s are anomalous in that they interrupt narrative to present musical performances only tangentially related to the plot. In one film directed by Busby Berkeley, for example, a scene begins with a shot of an audience watching a singer. The singer's face then fills the screen—a natural enough transition—but this image soon dissolves into a fanciful sequence consisting of various aerial views of city life. Although the sequence illustrates the song being sung, it does not contribute to the story Berkeley tells between musical numbers. In such sequences, filmmaking techniques are used not to advance a narrative but as a respite from narrative; the people we see are not characters in a plot but rather are abstracted figures; editing and camera movement function not to help tell a story but to manipulate images into intricate patterns. Can the musical—in which such differently motivated and constructed sequences abut so closely—fit comfortably within Bordwell's definition of the classical style?
- (10)
- (15)
- (20)
- (25)
- (30)

- Bordwell's response is that the musical, no less than comedy or melodrama (two other staples of the classical era), evolved from popular live theater. The musical's conventions, Bordwell argues, cue viewers to expect a different structure—alternating narrative scenes and self-contained performances—from that of other genres, a structure that audiences are prepared for and thus accept as "realistic." But raising the issue of genre does not disguise the fact that Bordwell stretches the definition of the term "realism," for there is still the problem exemplified in films such as Berkeley's by the fact that the musical performances are not merely self-contained but self-absorbed—the selfish aesthetic of the interlude isn't intended to advance the plot but instead to draw attention to its own artistic expertise. Even the viewer aware of the film's genre cannot remain entirely unfazed by the break in the film's "reality." Bordwell too quickly dismisses the fact that watching a film is a perceptual act and not an academic exercise in pigeonholing genres. Because knowledge of genre is acquired, it would be worthwhile for scholars like Bordwell to first consider how viewers process cinematic images and eventually come to accept them as conventions before generalizing about the realism of certain film styles.
- (35)
- (40)
- (45)
- (50)
- (55)

7. Which one of the following most accurately states the main point of the passage?
- (A) Despite some evidence to the contrary, Bordwell's definition of the classical style of filmmaking is borne out by a more careful examination of Hollywood film genres such as the musical.
- (B) Contrary to Bordwell's claims, the musicals of the 1930s such as Busby Berkeley's are not realistic because they do not depict events in chronological order.
- (C) Because film genres such as the musical evolved from popular theatrical forms, it can be argued that they fit comfortably within Bordwell's definition of the classical style of filmmaking.
- (D) The films of Busby Berkeley do not meet the requirements of Bordwell's definition of the classical style of filmmaking and therefore cannot be considered examples of the classical style of filmmaking.
- (E) The fact that Bordwell's definition of the classical style of filmmaking is obliged to treat musicals of the 1930s as realistic, despite compelling evidence to the contrary, illustrates the misguided nature of Bordwell's approach.
8. The passage identifies each of the following as a component of Bordwell's definition of the classical style of filmmaking EXCEPT:
- (A) avoidance of filmmaking techniques that call attention to the film medium
- (B) creation and presentation of clearly defined characters
- (C) portrayal of a self-sufficient and relatively realistic world
- (D) use of nonnarrative interludes between episodes of plot
- (E) depiction of a chronological sequence of events
9. The author uses the term "realistic" throughout the passage to refer to which one of the following qualities of a film?
- (A) the quality that allows the narrative structure to convey the story being told in the film
- (B) the quality that allows the world of the story told in the film to resemble actual life
- (C) the quality that allows the technical elements of filmmaking to contribute to the story being told in the film
- (D) the quality that allows audiences to determine easily the genre to which the film belongs
- (E) the quality that allows the film to employ a variety of narrative structures to tell a story



10. Which one of the following most accurately describes the organization of the passage?
- (A) The author states a scholar's thesis, counters the thesis with an example, summarizes the scholar's response to the example, points out a problem with the response, and criticizes the focus of the scholar's research.
 - (B) The author takes issue with a scholar's thesis, provides an example in support of a counterthesis, summarizes the scholar's response to the example, and argues in favor of replacing the scholar's thesis with the counterthesis.
 - (C) The author states a scholar's thesis, illustrates the thesis with an example, summarizes the scholar's interpretation of the example, points out a problem with the interpretation, and makes a suggestion for modifying the interpretation.
 - (D) The author takes issue with a scholar's thesis, provides an example illustrating the drawbacks of the thesis, summarizes the scholar's response to the example, points out a problem with the response, and offers a new thesis to replace the scholar's thesis.
 - (E) The author states a scholar's thesis, presents the results of research supporting the thesis, counters the results with an example, summarizes the scholar's response to the example, acknowledges the legitimacy of the response, but suggests that further research is needed to settle the matter.
11. The author of the passage would most likely agree with which one of the following statements?
- (A) Busby Berkeley's films are unique among musicals in that their performance sequences do not contribute to their narratives.
 - (B) The use of technical elements in films of the classical era was usually very simplistic.
 - (C) The film genres popular in the classical era were all derived from noncinematic popular entertainment forms.
 - (D) Audiences learn to accept certain cinematic images as conventions primarily through repeated exposure to such images.
 - (E) Most musical films of the 1930s concentrated on telling realistic stories.
12. The narrative structure of which one of the following hypothetical novels is most closely parallel to that of the musical films of the 1930s, as that genre is described by the author of the passage?
- (A) a novel that depicts a series of events, moving from one event to another without providing information necessary for understanding the context or chronology of the events
 - (B) a novel that follows a number of characters who do not know one another, depicting a single event in each of their lives and concluding with a final event that unites all of the characters
 - (C) a novel that follows a number of characters who all reside in the same town, depicting a single event in each of their lives that together combine to form a portrait of a typical day in the town
 - (D) a novel that follows a protagonist through a series of events, pausing throughout to provide information relevant to the events by means of fanciful flashbacks to the protagonist's youth
 - (E) a novel that follows a protagonist through the events of a single day, pausing throughout for stylistically elaborate sections expressing the protagonist's thoughts and fantasies about life in general
13. Which one of the following, if true, would most call into question the position of Bordwell described in the first two sentences of the last paragraph?
- (A) evidence that reviewers of musical films in the 1930s generally praised the films' unrealistic elements
 - (B) evidence that audiences went to musical films in the 1930s primarily to enjoy the musical performances
 - (C) evidence that viewers of musical films in the 1930s all experienced these films in the same way, whether or not they had previously been exposed to musicals
 - (D) evidence that audience members tend to have longer attention spans when watching films with whose genres they are unfamiliar
 - (E) evidence that the musicals presented in popular live theater before the 1930s are stylistically very similar to the musical films of the 1930s

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Passage A

The legal system rests on the assumption that people use conscious deliberation when deciding how to act—that is, in the absence of external duress, people freely decide how to act. But behaviors—even high-level behaviors—can take place in the absence of free will. For example, someone with a neurological disorder might form a facial expression without choosing to do so.

- (10) The crucial legal question is whether *all* of our actions are fundamentally beyond our control or whether some little bit of you is “free” to choose, independent of the rules of biology. After all, as neurologists tell us, there is no spot in the brain that is not densely interconnected with—and driven by—
- (15) other brain parts. And that suggests that no part is independent and therefore “free.”

- One thing seems clear: if free will *does* exist, it has little room in which to operate. It can at best be a small factor riding on top of vast neural networks shaped by genes and environment. In fact, free will may end up being so small that we eventually think about bad decision-making in the same way we think about any physical affliction.
- (20)

- Blameworthiness should thus be removed from the legal argot. It is a backward-looking concept that demands the impossible task of untangling the hopelessly complex web of genetics and environment in order to isolate a factor of free will that may or may not exist. Instead of debating culpability, the legal system has to become forward looking, and address how an accused lawbreaker is likely to behave in the future.
- (25)
- (30)

Passage B

Here is a paradox: if people lack free will, then how can the law be moved away from what seems to be a deeply entrenched reliance on blame-related concepts? Rational arguments will only get you so far.

- Clinical research indicates that people will often continue to make moral judgments even when they are conditioned to think that human behavior is determined by physical processes. The blaming urge is deeply rooted in the human psyche, and I have considerable doubt that any amount of scientific evidence can remove it from our criminal justice processes.
- (40)

- We have, of course, tried this before.
- (45) Rehabilitation was widely accepted by criminal justice experts in the mid-twentieth century. But public support waned, and a retributive backlash occurred in the 1970s and 1980s. Criminal behavior may be a matter of biology, not choice, but the public seems unwilling to incorporate this idea into the law.
- (50)

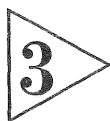
- My sense is that blaming performs some useful social function, even if it is in some way “false.” Blaming seems too intrinsically a part of the social life of human beings for me to see it as a worthless appendage that can be harmlessly amputated. As the criminal justice system confronts the challenges of brain science, it should also seek a better understanding of why people blame and try to continue to respect the underlying social needs.
- (55)

14. Both passages are primarily concerned with answering which one of the following questions?
- (A) Does the public support rehabilitation over retribution as the purpose of criminal justice?
- (B) Is the existence of free will compatible with the findings of brain science?
- (C) Does the legal system require the assumption that people choose freely?
- (D) Should the concept of blame be removed from criminal justice procedures?
- (E) Is criminal behavior comparable to a physical affliction?
15. Which one of the following most accurately describes the attitude of the author of passage B toward the type of argument presented in passage A?
- (A) sympathy with the premises, accompanied by doubts about the feasibility of the policy those premises are used to support.
- (B) intellectual acceptance, coupled with fear of the consequences if such acceptance becomes widespread
- (C) forceful rejection, both of the argument’s conclusion and one or more of the premises on which it is based
- (D) studied neutrality, with regard both to the conclusion and to the steps by which it is arrived at
- (E) sympathy with the conclusion amid doubt that it follows from the premises
16. The meaning of the phrase “forward looking” (line 30) as it is used in passage A is most closely related to which one of the following concepts in passage B?
- (A) entrenched (line 35)
- (B) rational (line 36)
- (C) conditioned (line 39)
- (D) rehabilitation (line 45)
- (E) backlash (line 47)

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17. It is most likely that the authors of the passages would disagree with each other about the truth of which one of the following statements?
- (A) A significant portion of people's choices are made freely.
 - (B) If free will does not exist, criminal law should not assign blame for any action.
 - (C) People should be imprisoned for actions from which they are not free to refrain.
 - (D) Actions that are completely determined by physical processes are not free.
 - (E) It is easy to eliminate the concept of blame from everyday life.
18. Which one of the following, if true, would cast the most doubt on the argument in passage B?
- (A) A new drug enables patients with a particular neurological disorder to exercise apparent control over their symptoms.
 - (B) In patients with a particular brain injury, the two hemispheres of the brain become causally isolated from one another.
 - (C) Subjects in a psychological experiment display random responses to a repeated stimulus.
 - (D) Some governments restrict the legal concept of blame to cases of disobedience to the authorities.
 - (E) There are societies that have no concept of blame.
19. Which one of the following conforms to the policy advocated by the author of passage A but not advocated by the author of passage B?
- (A) Parents should refrain from words and actions that could cause their children to feel ashamed of behavior that the parents regard as socially unacceptable.
 - (B) Prosecutors should be allowed to exclude jurors whose beliefs about free will make them unwilling to assign blame to anyone who is accused of a crime.
 - (C) The admissibility of expert testimony regarding a defendant's state of mind should be subject to strict guidelines.
 - (D) The findings of brain science should be viewed with suspicion, since they imply that the brain scientists themselves did not arrive at them by conscious deliberation.
 - (E) Courts should be allowed to consider a convicted criminal's motives to determine the likelihood that the criminal will offend again, but not to determine degree of culpability.

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Physicists posit that at first our universe was infinitesimally small and infinitely hot and dense. It then underwent a period of extremely rapid, massive inflation (the Big Bang), and it has since continued to expand and cool.

(5)

According to physicists Sean Carroll and Jennifer Chen, the Big Bang was not a unique event; events like it happen periodically over an incredibly vast time scale. This is based on the suggestion of some

(10)

physicists that the Big Bang was the beginning of our universe as we know it, but not the beginning of a larger Universe—or “multiverse”—that encompasses everything, including that which we can never see because it is beyond our “cosmic bubble.”

(15)

Carroll and Chen were initially interested in why time flows in only one direction. In physics the flow of time is captured by the second law of thermodynamics, which implies that entropy—a measure of total disorder—naturally increases with time. Entropy

(20)

increases because there are more ways for a system to be disordered than for it to be ordered. Therefore, if change occurs, it is more likely to be change toward greater disorder. For example, in a moderately orderly room, if one moves an object in the room randomly,

(25)

there are many more places one can put it that will make the room less orderly than there are places that will make it more orderly. So if, over time, objects in the room are continually moved randomly, it is most likely that the room will get increasingly disordered.

(30)

While the Big Bang process and what followed obey the second law of thermodynamics, it is a mystery why there should have been a small, hot, and dense universe to begin with. Such a low entropy universe is an extremely unlikely configuration, not

(35)

what scientists would expect from a randomly occurring initial condition. Carroll and Chen’s innovation is to argue that the most common initial condition is actually likely to resemble cold, empty space—not an obviously favorable starting point for the onset of inflation.

(40)

Recent research has shown that even empty space has faint traces of energy that fluctuate on the subatomic scale. Physicists Jaume Garriga and Alexander Vilenkin have suggested that these

(45)

fluctuations can generate their own big bangs in tiny areas widely separated in time and space. Carroll and Chen take our universe, and others, to be such fluctuations in a high entropy multiverse.

On this view, while the initial state that produced

(50)

our universe would appear to be, taken by itself, a highly improbable one, in the vastness of the multiverse the creation of our universe is not that unlikely. Indeed it is likely not even a unique event.

20. Which one of the following most accurately states the main idea of the passage?

- (A) Carroll and Chen theorize that our universe is the result of an energy fluctuation in a high entropy multiverse.
- (B) According to Carroll and Chen, entropy increases because there are more ways for a system to be disordered than for it to be ordered.
- (C) Carroll and Chen challenge the prevailing view of physicists that our universe underwent a period of extremely rapid, massive inflation.
- (D) According to Carroll and Chen, a small, hot, and dense configuration is unlikely as a random initial condition for a universe.
- (E) Carroll and Chen posit that our universe is one of many universes in an all-encompassing multiverse.

21. Which one of the following comes closest to capturing what the term “cosmic bubble” means in the last sentence of the second paragraph?

- (A) all-encompassing larger universe
- (B) universe contained in the multiverse
- (C) inflation following a big bang
- (D) theoretical preconceptions
- (E) low entropy state

22. The author’s stance toward Carroll and Chen’s theory is most accurately characterized as that of

- (A) an ardent adversary
- (B) a dismissive critic
- (C) a disinterested skeptic
- (D) a sympathetic reporter
- (E) a zealous proponent

23. The claim in the fourth paragraph that an initial condition is likely to resemble cold, empty space is most strongly supported by information in the

- (A) first paragraph
- (B) second paragraph
- (C) third paragraph
- (D) fifth paragraph
- (E) sixth paragraph

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24. The author's reference to a suggestion by Garriga and Vilenkin in the fifth paragraph primarily serves to
- (A) question a presupposition of the Big Bang theory
 - (B) raise a potential objection to Carroll and Chen's theory
 - (C) illustrate an implication of Carroll and Chen's theory
 - (D) show how a puzzle raised by Carroll and Chen is resolved within Carroll and Chen's theory
 - (E) suggest an alternative explanation of the evidence upon which Carroll and Chen's theory is based
25. The primary purpose of the passage is to
- (A) draw novel consequences from an established principle
 - (B) challenge a dominant point of view
 - (C) chronicle the history of a dispute
 - (D) adjudicate between two theories
 - (E) give the rationale for a theory
26. It can be inferred from the passage that the author presumes which one of the following to be true?
- (A) The multiverse originated in a big bang.
 - (B) The initial state of our universe resembles cold, empty space.
 - (C) A hot and dense state is a state of low entropy.
 - (D) The multiverse is part of a larger system of multiverses.
 - (E) The second law of thermodynamics was formulated to answer a question about time.

S T O P

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY.
DO NOT WORK ON ANY OTHER SECTION IN THE TEST.