Section 1 – Quantitative – 37 questions – 75 minutes

Q1: The population of City X is 50 percent of the population of City Y. The population of City X is what percent of the total population of City X and City Y?

A. 25%   B. 33.33%   C. 40%   D. 50%   E. 66.66%

Q2: Guy's net income equals his gross income minus his deductions. By what percent did Guy's net income change on January 1, 1989, when both his gross income and his deductions increased?

(1) Guy's gross income increased by 4 percent on January 1, 1989.

(2) Guy's deductions increased by 15 percent on January 1, 1989.

Q3: If wz < 2, is z < 1?   (1) w > 2   (2) z < 2

Q4: Which of the following is equal to $5^{17} * 4^9$?

A. $2 * 10^{13}$ B. $2 * 10^{17}$ C. $2 * 10^{20}$ D. $2 * 10^{26}$ E. $2 * 10^{36}$

Q5: If x and y are positive integers and $y = \sqrt{9 - x}$, what is the value of y?

(1) x < 8   (2) y > 1

Q6: Sue's monthly earnings consist of a monthly salary and a 4 percent commission on the portion of her monthly sales that is in excess of $2,000. If Sue's monthly salary was the same in July as in August, how much greater were her sales in July than in August?

(1) Sue's monthly earnings were $3,620 in July and $3,580 in August.

(2) Sue's monthly salary was $3,500 in July and in August.

Q7: A company has assigned a distinct 3-digit code number to each of its 330 employees. Each code number was formed from the digits 2, 3, 4, 5, 6, 7, 8, 9 and no digit appears more than once in any one code number. How many unassigned code numbers are there?

A. 6   B. 58   C. 174 D. 182 E. 399

Q8: The points R, T, and U lie on a circle that has radius 4. If the length of arc RTU is $4\pi/3$, what is the length of line segment RU?

A.   4/3   B. 8/3   C. 3   D. 4   E. 6

Q9: In an art gallery, 25 percent of the art pieces on display were photographs. If 12 percent of the photographs were black-and-white photographs, what percent of the art pieces on display were black-and-white photographs?

A. 3%   B. 7%   C. 13%   D. 30%   E. 37%

Q10: What is the value of $(x - y)^4$?

(1) The product of x and y is 7.   (2) x and y are integers.

Q11: The total cost of an office dinner was shared equally by k of the n employees who attended the dinner. What was the total cost of the dinner?

(1) Each of the k employees who shared the cost of the dinner paid $19.

(2) If the total cost of the dinner had been shared equally by k + 1 of the n employees who attended the dinner, each of the k + 1 employees would have paid $18.

Q12: From Leland's gross pay of p dollars last week, t percent was deducted for taxes and then s dollars was deducted for savings. What amount of Leland's gross pay last week remained after these two deductions?

(1) p - s = 244   (2) pt = 7,552

Q13: If the sequence $x_1, x_2, x_3, ..., x_n, ...$ is such that $x_1 = 3$ and $x_{n+1} = 2x_n - 1$ for n = 1, then $x_{20} - x_{19} =$

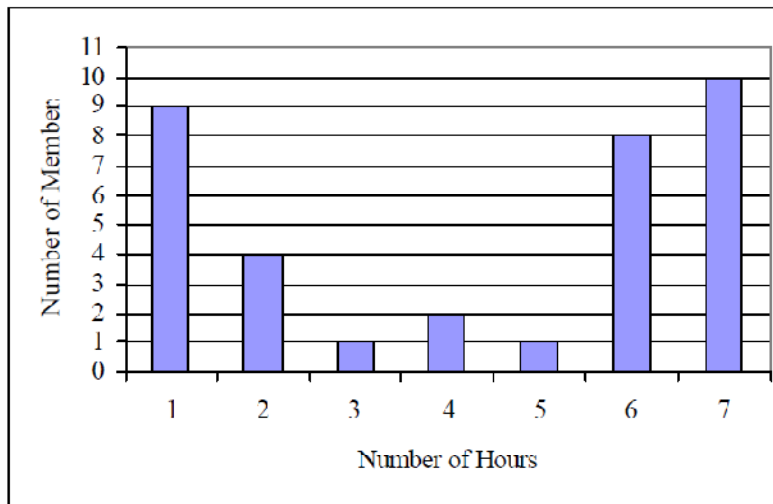A. 2^{19} B. 2^{20} C. 2^{21} D. $2^{20} - 1$ E. $2^{21} - 1$

Q14:

Yesterday each of the 35 members of a certain task force spent some time working on project P. The graph shows the number of hours and the number of members who spent that number of hours working on project P yesterday. What was the median number of hours that the members of the task force spent working on project P yesterday?

A. 2   B. 3   C. 4   D. 5   E. 6

Q15: The average (arithmetic mean) of the 5 positive integers k, m, r, s, and t is 16, and

k < m < r < s < t. If t is 40, what is the greatest possible value of the median of the 5 integers?

A. 16   B. 18   C. 19   D. 20   E. 22

Q16: If $s^4v^3x^7 < 0$, is svx < 0?   (1) v < 0   (2) x > 0

Q17: A certain list consists of 21 different numbers. If n is in the list and n is 4 times the average (arithmetic mean) of the other 20 numbers in the list, then n is what fraction of the sum of the 21 numbers in the list?

A. 1/20   B. 1/6   C. 1/5   D. 4/21   E. 5/21

Q18: In isosceles triangle PQR, if the measure of angle P is 80º, which of the following could be the measure of angle R in degrees?

I. 20   II. 50   III. 80

A. I only   B. III only   C. I and II only   D. II and III only

E. I, II, and III

Q19: Three printing presses, R, S, and T, working together at their respective constant rates, can do a certain printing job in 4 hours. S and T, working together at their respective constant rates, can do the same job in 5 hours. How many hours would it take R, working alone at its constant rate, to do the same job?

A. 8   B. 10   C. 12   D. 15   E. 20

Q20:

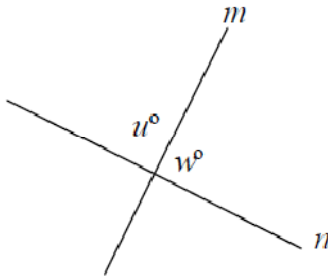|	Favorable	Unfavorable	Not Sure
Candidate *M*	40	20	40
Candidate *N*	30	35	35

The table above shows the results of a survey of 100 voters each responded "favorable" or "unfavorable" or "not sure" when asked about their impressions of candidate M and of candidate N. What was the number of voters who responded "favorable" for both candidates?

(1) The number of voters who did not respond "favorable" for either candidate was 40.

(2) The number of voters who responded "unfavorable" for both candidates was 10.

Q21: A certain liquid leaks out of a container at the rate of k liters for every x hours. If the liquid costs $6 per liter, what is the cost, in dollars, of the amount of the liquid that will leak out in y hours?

A. ky/6x   B. 6x/ky   C. 6k/xy   D. 6ky/x   E. 6xy/k

Q22:

Lines m and n intersect, as shown in the figure above. What is the value of u - w?

(1) u = 90   (2) Lines m and n are perpendicular.

Q23: When tossed, a certain coin has equal probability of landing on either side. If the coin is tossed 3 times, what is the probability that it will land on the same side each time?

A. 1/8   B. ¼   C. 1/3   D. 3/8   E. ½

Q24: Is |x| + |x -1| = 1?   (1) x ≥ 0   (2) x ≤ 1

Q25: If y is the smallest positive integer such that 3,150 multiplied by y is the square of an integer, then y must be

A. 2   B. 5   C. 6   D. 7   E. 14

Q26: In the decimal representation of x, where 0 < x < 1, is the tenths digit if x nonzero?

(1) 16x is an integer.   (2) 8x is an integer.

Q27: If x and z are integers, is at least one of them even?   (1) x + z is odd.   (2) x - z is odd.

Q28: In a certain English class, ¼ of the number of girls is equal to 1/6 of the total number of students. What is the ratio of the number of boys to the number of girls in the class?

A. 1 to 4   B. 1 to 3   C. 1 to 2   D. 2 to 3   E. 2 to 1

Q29: For any integer k greater than 1, the symbol k* denotes the product of all the fractions of the form 1/t, where t is an integer between 1 and k, inclusive. What is the value of 5* / 4*?

A. 5   B. 5/4   C. 4/5   D. ¼   E. 1/5

Q30: For a recent play performance, the ticket prices were $25 per adult and $15 per child. A total of 500 tickets were sold for the performance. How many of the tickets sold were for adults?

(1) Revenue from ticket sales for this performance totaled $10,500.

(2) The average (arithmetic mean) price per ticket sold was $21.

Q31: In the xy-plane, the vertices of a triangle have coordinates (0, 0), (3, 3), and (7, 0). What is the perimeter of the triangle?

A. 13   B. $\sqrt{34}$ C. $\sqrt{43}$ D. $7 + 6\sqrt{2}$ E. $12 + 3\sqrt{2}$

Q32: What is the remainder when the positive integer x is divided by 8?

(1) When x is divided by 12, the remainder is 5.

(2) When x is divided by 18, the remainder is 11.

Q33: If the volume of a small container is 14,520 cubic millimeters, what is the volume of the container in cubic centimeters? (1 millimeter = 0.1 centimeter)

A. 0.1452   B. 1.452   C. 14.52   D. 145.2   E. 1,452

Q34: What is the value of the integer n?   (1) $n(n + 2) = 15$ (2) $(n + 2)^n = 125$

Q35: The total amount that a certain bank loaned in 1998 was $47 million. How many dollars did the bank loan in June of 1998 for car loans?

(1) 18 percent of the amount that the bank loaned in June of 1998 was for car loans.

(2) 8 percent of the total amount that the bank loaned in 1998 was loaned in June.

Q36: If x, y, and k are positive numbers such that $\left(\frac{x}{x+y}\right) 10 + \left(\frac{y}{x+y}\right) 20 = k$ and if x < y, which of the following could be the value of k?

A. 10   B. 12   C. 15   D. 18   E. 30

Q37: Of the mutual funds on a "select list," 1/3 have 5-star ratings, and 2/5 of the remaining funds have 4-star ratings. If the remaining 300 funds on the list have 3-star ratings, how many funds are on the list?

A. 500   B. 750   C. 1,000   D. 1,200   E. 1,500

Q1:   Imported into Massachusetts from Europe in 1869, the gypsy moth was used by a French scientist in an attempt at developing a strong strain of silk-producing insects, crossing gypsy moths with adult silkworms.

   A. Imported into Massachusetts from Europe in 1869, the gypsy moth was used by a French scientist in an attempt at developing a strong strain of silk-producing insects, crossing gypsy moths with adult silkworms.

   B. Imported into Massachusetts from Europe in 1869, a French scientist was attempting to develop a strong strain of silk-producing insects by crossing gypsy moths with adult silkworms.

   C. To cross gypsy moths with adult silkworms, in attempting the development of a strong strain of silk-producing insects, a French scientist in 1869 imported the gypsy moth into Massachusetts from Europe.

   D. The gypsy moth was imported into Massachusetts from Europe in 1869 by a French scientist attempting to develop a strong strain of silk-producing insects by crossing gypsy moths with adult silkworms.

   E. In an attempt at the development of a strong strain of silk-producing insects, a French scientist, importing the gypsy moth from Europe into Massachusetts in 1869 in order to cross gypsy moths and adult silkworms.

Q2:   As the honeybee's stinger is heavily barbed, staying where it is inserted, this results in the act of stinging causing the bee to sustain a fatal injury.

   A. As the honeybee's stinger is heavily barbed, staying where it is inserted, this results in the act of stinging causing

   B. As the heavily barbed stinger of the honeybee stays where it is inserted, with the result that the act of stinging causes

   C. The honeybee's stinger, heavily barbed and staying where it is inserted, results in the fact that the act of stinging causes

   D. The heavily barbed stinger of the honeybee stays where it is inserted, and results in the act of stinging causing

   E. The honeybee's stinger is heavily barbed and stays where it is inserted, with the result that the act of stinging causes

Q3: Parland's alligator population has been declining in recent years, primarily because of hunting. Alligators prey heavily on a species of freshwater fish that is highly valued as food by Parlanders, who had hoped that the decline in the alligator population would lead to an increase in the numbers of these fish available for human consumption. Yet the population of this fish species has also declined, even though the annual number caught for human consumption has not increased.

Which of the following, if true, most helps to explain the decline in the population of the fish species?

A. The decline in the alligator population has meant that fishers can work in some parts of lakes and rivers that were formerly too dangerous.

B. Over the last few years, Parland's commercial fishing enterprises have increased the number of fishing boats they use.

C. Many Parlanders who hunt alligators do so because of the high market price of alligator skins, not because of the threat alligators pose to the fish population.

D. During Parland's dry season, holes dug by alligators remain filled with water long enough to provide a safe place for the eggs of this fish species to hatch.

E. In several neighboring countries through which Parland's rivers also flow, alligators are at risk of extinction as a result of extensive hunting.

Q4 to Q6:

In the fourteenth and fifteenth centuries, many Western Pueblo settlements in what is now the southwestern United States may have possessed distinctly hierarchical organizational structures. These communities' agricultural systems—which were "intensive" in the use of labor rather than "extensive" in area—may have given rise to political leadership that managed both labor and food resources. That formal management of food resources was needed is suggested by the large size of **storage spaces** located around some communal Great Kivas (underground ceremonial chambers). Though no direct evidence exists that such spaces were used to store food, Western Pueblo communities lacking sufficient arable land to support their populations could have preserved the necessary extra food, including imported foodstuffs, in such apparently communal spaces.

Moreover, evidence of specialization in producing raw materials and in manufacturing ceramics and textiles indicates differentiation of labor within and between communities. The organizational and managerial demands of such specialization strengthen the possibility that a decision-making elite existed, an elite whose control over labor, the use of community surpluses, and the acquisition of imported goods would have led to a concentration of economic resources in their own hands. Evidence for differential distribution of wealth is found in burials of the period: some include large quantities of pottery, jewelry, and other artifacts, whereas others from the same sites lack any such materials.

Q4: Which of the following, if true, would most clearly undermine the author's statement in the last sentence of the passage regarding the distribution of wealth in Western Pueblo settlements?

A. Only community members of exceptional wealth are likely to have been buried with their personal possessions.
B. Members of communities with extensive agricultural systems are usually buried without personal possessions.
C. Most artifacts found in burial sites were manufactured locally rather than imported from other communities.
D. Burial artifacts are often ritual objects associated with religious practices rather than being the deceased's personal possessions.
E. The quality of burial artifacts varies depending on the site with which they are associated.

Q5: According to the passage, which of the following is probably true of the storage spaces mentioned in the passage?

A. They were used by the community elite for storage of their own food supplies.
B. They served a ceremonial as well as a practical function.
C. Their size is an indication of the wealth of the particular community to which they belonged.
D. Their existence proves that the community to which they belonged imported large amounts of food.
E. They belonged to and were used by the community as a whole.

Q6: The primary purpose of the passage is to

A. outline the methods by which resources were managed within a particular group of communities
B. account for the distribution of wealth within a particular group of communities
C. provide support for a hypothesis concerning the social structure of a particular society
D. explain how political leadership changed in a particular historical situation
E. present new evidence that contradicts previous theories about a particular historical situation

Q7:   In Scotland, the <u>number of wild salmon have been reduced because of uncontrolled deep-sea and coastal netting</u>, by pollution, and by various other threats to the fish's habitat.

   A. number of wild salmon have been reduced because of uncontrolled deep-sea and coastal netting
   B. number of wild salmon is reduced because deep-sea and coastal netting is not controlled
   C. numbers of wild salmon has been reduced because of uncontrolled deep-sea and coastal netting
   D. wild salmon's numbers are reduced by deep-sea and coastal netting that is not controlled
   E. wild salmon's numbers have been reduced by uncontrolled deep-sea and coastal netting

Q8:   The number of applications for teaching positions in Newtown's public schools was 5.7 percent lower in 1993 than in 1985 and 5.9 percent lower in 1994 than in 1985. Despite a steadily growing student population and an increasing number of teacher resignations, however, Newtown dose not face a teacher shortage in the late 1990's.

   Which of the following, if true, would contribute most to an explanation of the apparent discrepancy above?

   A. Many of Newtown's public school students do not graduate from high school.
   B. New housing developments planned for Newtown are slated for occupancy in 1997 and are expected to increase the number of elementary school students in Newtown's public schools by 12 percent.
   C. The Newtown school board does not contemplate increasing the ratio of students to teachers in the 1990's.
   D. Teachers' colleges in and near Newtown produced fewer graduates in 1994 than in 1993.
   E. In 1993 Newtown's public schools received 40 percent more applications for teaching positions than there were positions available.

Q9 to Q11:

Social learning in animals is said to occur when direct or indirect social interaction facilitates the acquisition of a novel behavior. It usually takes the form of an experienced animal (the demonstrator) performing a behavior such that the naïve animal (the observer) subsequently expresses the same behavior sooner, or more completely, than it would have otherwise. One example of social learning is the acquisition of preferences for novel foods.

Some experiments have suggested that among mammals, social learning facilitates the identification of beneficial food items, but that among birds, social learning helps animals avoid toxic substances. For example, one study showed that when red-wing blackbirds observed others consuming a colored food or a food in a distinctly marked container and then becoming ill, they subsequently avoided food associated with that color or container. Another experiment showed that house sparrows consumed less red food after they observed others eating red food that was treated so as to be noxious. Studies on non-avian species have not produced similar results, leading researchers to speculate that avian social learning may be fundamentally different from that of mammals.

But Sherwin's recent experiments with domestic hens do not support the notion that avian social learning necessarily facilitates aversion to novel foods that are noxious or toxic. Even when demonstrator hens reacted with obvious disgust to a specific food, via vigorous head shaking and bill wiping, there was no evidence that observers subsequently avoided eating that food. Sherwin's research team speculated that ecological or social constraints during the evolution of this species might have resulted in there being little benefit from the social learning of unpalatability, for instance, selective pressures for this mode of learning would be reduced if the birds rarely encountered noxious or toxic food or rarely interacted after eating such food, or if the consequences of ingestion were minimal. In a related experiment, the same researchers showed that if observer hens watched demonstrator hens react favorably to food of a particular color, then observer hens ate more food of that color than they ate of food of other colors. These results confirmed that avian species can develop preferences for palatable food through social learning.

9. **The primary purpose of the passage is to discuss the**
    A. techniques used in certain experiments on social learning in birds
    B. reasons for the differences between social learning in birds and in mammals
    C. question of how social learning manifests itself in birds
    D. basis for a widespread belief about a difference in behavior between birds and mammals
    E. possible reasons why birds may or may not learn from each other in a particular way

10. **According to the passage, which of the following is true of the experiments on domestic hens conducted by Sherwin's research team?**
    A. Only a small number of observer hens appeared to learn to avoid food that was demonstrated by other hens to be noxious.
    B. Observer hens ingested food preferentially only after numerous instances of witnessing demonstrator hens preferentially ingest that type of food.
    C. Observer hens appeared unable to recognize when demonstrator hens found a particular food especially palatable.
    D. Demonstrator hens reacted adversely to ingesting certain novel foods.
    E. Demonstrator hens altered their behavior less obviously in response to noxious foods than in response to highly palatable foods.

11. **It can be inferred that the author of the passage would be most likely to agree with which of the following statements regarding the results of the recent experiments conducted by Sherwin's research team?**
    A. The experiments demonstrate that social learning in avian species facilitates the identification of noxious or toxic foods.
    B. The experiments suggest that social learning has made avian species less adept than non-avian species at learning to prefer beneficial foods and avoid noxious and toxic foods.
    C. The experiments undermine the notion that most avian species have evolved in environments where there is little benefit to the social learning of unpalatability.
    D. The experiments suggest that the acquisition of food preferences in avian species is largely unaffected by social learning.
    E. The experiments show that social learning in avian species can promote the preferential consumption of beneficial foods but do not support the claim that social learning in avian species promotes the avoidance of noxious or toxic foods.

Q12: In Rubaria, excellent health care is available to virtually the entire population, whereas very few people in Terland receive adequate medical care. Yet, although the death rate for most diseases is higher in Terland than in Rubaria, the percentage of the male population that dies from prostate cancer is significantly higher in Rubaria than in Terland.

Which of the following, if true, most helps to explain the disparity between the prostate cancer death rate in Rubaria and Terland?

A. Effective treatment of prostate cancer in its early stages generally requires medical techniques available in Rubaria but not in Terland.

B. Most men who have prostate cancer are older than the average life expectancy for male inhabitants of Terland.

C. Being in poor general health does not increase one's risk of developing prostate cancer.

D. It is possible to decrease one's risk of getting prostate cancer by eating certain kinds of foods, and such foods are more readily available in Rubaria than in Terland.

E. Among men in Rubaria, the death rate from prostate cancer is significantly higher for those who do not take full advantage of Rubaria's health care system than for those who do.

Q13: The traditional treatment of strep infections has been a seven-day course of antibiotics, either penicillin or erythromycin. However, since many patients stop taking those drugs within three days, reinfection is common in cases where those drugs are prescribed. A new antibiotic requires only a three-day course of treatment. Therefore, reinfection will probably be less common in cases where the new antibiotic is prescribed than in cases where either penicillin or erythromycin is prescribed.

Which of the following, if true, most strengthens the argument?

A. Some of the people who are allergic to penicillin are likely to be allergic to the new antibiotic.

B. A course of treatment with the new antibiotic costs about the same as a course of treatment with either penicillin or erythromycin.

C. The new antibiotic has been shown to be effective in eradicating bacterial infections other than strep.

D. Some physicians have already begun to prescribe the new antibiotic instead of penicillin or erythromycin for the treatment of some strep infections.

E. Regardless of whether they take a traditional antibiotic or the new one, most patients feel fully recovered after taking the drug for three days.

Q14: A scrub jay can remember when it cached a particular piece of food in a particular place, researchers have discovered, and <u>tend not to bother to recover a perishable treat if</u> stored long enough to have rotted.

A. tend not to bother to recover a perishable treat if

B. they tend not to bother recovering a perishable treat

C. tending not to bother to recover a perishable treat it

D. tends not to bother recovering a perishable treat

E. tends not bothering to recover a perishable treat it

Q15: The commission's office of compliance, inspections, and investigations plans to intensify its scrutiny of stock analysts <u>to investigate not only whether research is an independent function at brokerage firms, but also whether conflicts result when analysts own the stocks they write about or when they are</u> paid for their work by a firm's investment banking division.

A. A. to investigate not only whether research is an independent function at brokerage firms, but also whether conflicts result when analysts own the stocks they write about or when they are

B. B. to investigate not only whether research is an independent function at brokerage firms, but also if conflicts result when analysts own the stocks they write about or they are

C. C. to not only investigate whether or not research is an independent function at brokerage firms, but also if conflicts result when analysts own the stocks they write about or are

D. D. not only to investigate whether or not research is an independent function at brokerage firms, but also whether conflicts result when analysts own the stocks they write about or are

E. E. not only to investigate whether research is an independent function at brokerage firms, but also whether conflicts result when analysts own the stocks they write about or when

Q16: In response to mounting public concern, an airplane manufacturer implemented a program with the well-publicized goal of reducing by half the total yearly amount of hazardous waste generated by its passenger-jet division. When the program began in 1994, the division's hazardous waste output was 90 pounds per production worker; last year it was 40 pounds per production worker. Clearly, therefore, charges that the manufacturer's program has not met its goal are false.

Which of the following is an assumption on which the argument depends?

A. The amount of nonhazardous waste generated each year by the passenger-jet division has not increased significantly since 1994.

B. At least as many passenger jets were produced by the division last year as had been produced in 1994.

C. Since 1994, other divisions in the company have achieved reductions in hazardous waste output that are at least equal to that achieved in the passenger-jet division.

D. The average number of weekly hours per production worker in the passenger-jet division was not significantly greater last year than it was in 1994.

E. The number of production workers assigned to the passenger-jet division was not significantly less in 1994 than it was last year.

Q17: Fossils of the arm of a <u>sloth found in Puerto Rico in 1991, and dated at 34 million years old, made it the earliest known mammal of</u> the Greater Antilles islands.

A. sloth found in Puerto Rico in 1991, and dated at 34 million years old, made it the earliest known mammal of

B. sloth, that they found in Puerto Rico in 1991, has been dated at 34 million years old, thus making it the earliest mammal known on

C. sloth that was found in Puerto Rico in 1991, was dated at 34 million years old, making this the earliest known mammal of

D. sloth, found in Puerto Rico in 1991, have been dated at 34 million years old, making the sloth the earliest known mammal on

E. sloth which, found in Puerto Rico in 1991, was dated at 34 million years old, made the sloth the earliest known mammal of

Q18: A South American bird that forages for winged termites and other small insects while swinging upside down from the foliage of tall trees, the graveteiro belongs to the ovenbird family, a group of New World tropical birds that includes more than 230 species and that are represented in virtually every kind of habitat.

  A. graveteiro belongs to the ovenbird family, a group of New World tropical birds that includes more than 230 species and that are

  B. graveteiro belongs to the ovenbird family, a group of New World tropical birds that includes more than 230 species and is

  C. graveteiro belongs to the ovenbird family, a group of New World tropical birds that include more than 230 species and is

  D. graveteiro, which belongs to the ovenbird family, a group of New World tropical birds that includes more than 230 species and that are

  E. graveteiro, which belongs to the ovenbird family, a group of New World tropical birds that includes more than 230 species and is

Q19: A Swiss government panel recommended that the country sell about half its gold reserves and this raised fears of other countries that do the same and inundate the market.

  A. reserves and this raised fears of other countries that
  B. reserves, which, as a result, raised fears of other countries that
  C. reserves; as a result, they feared that other countries would
  D. reserves, with fears raised that other countries would
  E. reserves, raising fears that other countries would

Q20: Leaching, the recovery of copper from the drainage water of mines, as a method of the extraction of minerals, it was well established as early as the eighteenth century, but until about 25 years ago miners did not realize that bacteria take an active part in the process.

  A. as a method of the extraction of minerals, it was well established
  B. as a method of the extraction of minerals well established
  C. was a well-established method of mineral extraction
  D. was a well-established method of extracting mineral that was
  E. had been a method of mineral extraction, well established

Q. 21: Background information: This year, each film submitted to the Barbizon Film Festival was submitted in one of ten categories. For each category, there was a panel that decided which submitted films to accept.

Fact 1: Within each category, the rate of acceptance for domestic films was the same as that for foreign films.

Fact 2: The overall rate of acceptance of domestic films was significantly higher than that of foreign films.

In light of the background information, which of the following, if true, can account for fact 1 and fact 2 both being true of the submissions to this year's Barbizon Film Festival?

A. In each category, the selection panel was composed of filmmakers, and some selection panels included no foreign filmmakers.

B. Significantly more domestic films than foreign films were submitted to the festival.

C. In each of the past three years, the overall acceptance rate was higher for foreign than for domestic films, an outcome that had upset some domestic filmmakers.

D. The number of films to be selected in each category was predetermined, but in no category was it required that the acceptance rate of foreign films should equal that of domestic films.

E. Most foreign films, unlike most domestic films, were submitted in categories with high prestige, but with correspondingly low rates of acceptance.

Q22: Giuseppe Alessi, a world-class chef whose life has been a search for the genuine and the delicious in Florentine cooking, is an accomplished scholar not only unearthing many of his recipes from medieval and Renaissance manuscripts but also a poet and philosopher who draws his inspiration from the idyllic frescoes of Etruscan tombs.

A. not only unearthing many of his recipes from medieval and Renaissance manuscripts but also a poet and philosopher who draws

B. unearthing many of his recipes both from medieval and Renaissance manuscripts, as well as a poet and a philosopher who draws

C. who unearths many of his recipes from medieval and Renaissance manuscripts, as well as a poet and a philosopher who draws

D. who unearths many of his recipes from medieval and Renaissance manuscripts, but also a poet and a philosopher drawing

E. who unearths many of his recipes from medieval and Renaissance manuscripts, a poet and philosopher drawing

Q23: **Environmental organizations want to preserve the land surrounding the Wilgrinn Wilderness Area from residential development.** They plan to do this by purchasing that land from the farmers who own it. That plan is ill-conceived: if the farmers did sell their land, they would sell it to the highest bidder, and developers would outbid any other bidders. On the other hand, **these farmers will never actually sell any of the land, provided that farming it remains viable**. But farming will not remain viable if the farms are left unmodernized, and most of the farmers lack the financial resources modernization requires. And that is exactly why a more sensible preservation strategy would be to assist the farmers to modernize their farms to the extent needed to maintain viability.

In the argument as a whole, the two boldface proportions play which of the following roles?

A. The first presents a goal that the argument rejects as ill-conceived; the second is evidence that is presented as grounds for that rejection.

B. The first presents a goal that the argument concludes cannot be attained; the second is a reason offered in support of that conclusion.

C. The first presents a goal that the argument concludes can be attained; the second is a judgment disputing that conclusion.

D. The first presents a goal, strategies for achieving which are being evaluated in the argument; the second is a judgment providing a basis for the argument's advocacy of a particular strategy.

E. The first presents a goal that the argument endorses; the second presents a situation that the argument contends must be changed if that goal is to be met in the foreseeable future.

Q24: **Which of the following most logically completes the argument?**

A certain cultivated herb is one of a group of closely related plants that thrive in soil with high concentrations of metals that are toxic to most other plants. Agronomists studying the herb have discovered that it produces large amounts of histidine, an amino acid that, in test-tube solutions, renders these metals chemically inert. Possibly, therefore, the herb's high histidine production is what allows it to grow in metal-rich soils, a hypothesis that would gain support if _____.

A. histidine is found in all parts of the plant—roots, stem, leaves, and flowers

B. the herb's high level of histidine production is found to be associated with an unusually low level of production of other amino acids

C. others of the closely related group of plants are also found to produce histidine in large quantities

D. cultivation of the herb in soil with high concentrations of the metals will, over an extended period, make the soil suitable for plants to which the metals are toxic

E. the concentration of histidine in the growing herb declines as the plant approaches maturity

Q25 to Q27:

Researchers studying how genes control animal behavior have had to deal with many uncertainties. In the first place, most behaviors are governed by more than one gene, and until recently geneticists had no method for identifying the multiple genes involved. In addition, even when a single gene is found to control a behavior, researchers in different fields do not necessarily agree that it is a "behavioral gene." Neuroscientists, whose interest in genetic research is to understand the nervous system (which generates behavior), define the term broadly. But ethologists—specialists in animal behavior—are interested in evolution, so they define the term narrowly. They insist that mutations in a behavioral gene must alter a specific normal behavior and not merely make the organism ill, so that the genetically induced behavioral change will provide variation that natural selection can act upon, possibly leading to the evolution of a new species. For example, in the fruit fly, researchers have identified the gene Shaker, mutations in which cause flies to shake violently under anesthesia. Since shaking is not healthy, ethologists do not consider Shaker a behavioral gene. In contrast, ethologists do consider the gene period (per), which controls the fruit fly's circadian (24-hour) rhythm, a behavioral gene because files with mutated per genes are healthy; they simply have different rhythms.

Q25: The passage suggests that neuroscientists would most likely consider Shaker to be which of the following?
A. An example of a behavioral gene
B. One of multiple genes that control a single behavior
C. A gene that, when mutated, causes an alteration in a specific normal behavior without making the organism ill
D. A gene of interest to ethologists but of no interest to neuroscientists
E. A poor source of information about the nervous system

Q26: It can be inferred from the passage that which of the following, if true, would be most likely to influence ethologists' opinions about whether a particular gene in a species is a behavioral gene?
A. The gene is found only in that species.
B. The gene is extremely difficult to identify.
C. The only effect of mutations in the gene is to make the organism ill.
D. Neuroscientists consider the gene to be a behavioral gene.
E. Geneticists consider the gene to be a behavioral gene.

Q27: The primary purpose of the passage is to
A. summarize findings in an area of research
B. discuss different perspectives on a scientific question
C. outline the major questions in a scientific discipline
D. illustrate the usefulness of investigating a research topic
E. reconcile differences between two definitions of a term

Q28: Researchers agreed that the study of new treatments for heart attack patients was extremely important but <u>more research was needed to determine that balloon angioplasty preceded with ultrasound was or was not any better for heart attack patients than</u> the balloon procedure by itself.

A. more research was needed to determine that balloon angioplasty preceded with ultrasound was or was not any better for heart attack patients than

B. more research was needed for determining whether or not balloon angioplasty preceded by ultrasound is any better for heart attack patients than is

C. that more research was needed to determine whether balloon angioplasty preceded by ultrasound is any better for heart attack patients than

D. that more research was needed to determine that balloon angioplasty preceded with ultrasound was any better for heart attack patients than

E. that more research was needed for determining that balloon angioplasty preceded by ultrasound is or is not any better for heart attack patients than is

Q29: The emission of sulfur dioxide when high-sulfur coal is burned is restricted by law. New coal-burning plants usually comply with the law by installing expensive equipment to filter sulfur dioxide from their emissions. These new plants could save money by installing instead less expensive cleaning equipment that chemically removes most sulfur from coal before combustion.

Which of the following, if known, would be most relevant to evaluating the claim above about how new coal-burning plants could save money?

A. Whether existing oil-burning plants are required to filter sulfur dioxide from their emissions

B. Whether the expense of installing the cleaning equipment in a new plant is less than the expense of installing the cleaning equipment in an older plant

C. Whether the process of cleaning the coal is more expensive than the process of filtering the emissions

D. Whether lawful emissions of sulfur dioxide from coal-burning plants are damaging the environment

E. Whether existing plants that use the filtering equipment could replace this equipment with the cleaning equipment and still compete with new plants that install the cleaning equipment

Q30: Unlike <u>that of earlier works on slavery, Blassingame's</u> innovative study relies not on the records of White slave owners but on the records of the salves themselves, especially the 70 or so autobiographies and memoirs that have been preserved.

A. that of earlier words on slavery, Blassingame's

B. that of earlier works on slavery, Blassingame in his

C. earlier works on slavery, Blassingame in his

D. earlier works on slavery, Blassingame's

E. the earlier works on slavery, Blassingame in his

Q31:   Scientists have recently discovered that the ultrathin, layered construction of a butterfly's <u>wings, the</u> <u>same as the one making some butterflies shimmer via the phenomenon of iridescence, are enabling</u> the insect to control how much heat energy is absorbed by its wings and how much is reflected away.

A. wings, the same as the one making some butterflies shimmer via the phenomenon of iridescence, are enabling

B. wings, which is the same one that makes some butterflies shimmer via the phenomenon of iridescence, that also enables

C. wings is the same as the one that makes some butterflies shimmer via the phenomenon of iridescence, enabling

D. wings—the same construction that makes some butterflies shimmer via the phenomenon of iridescence—also enables

E. wings—of the same construction that makes some butterflies shimmer via the phenomenon of iridescence—also enable

Q32:   A theory is either true or false. Galileo's observations of Jupiter's satellites showed that the Ptolemaic theory of the motion of celestial bodies is false. Therefore, since the Copernican theory of planetary motion is inconsistent with the Ptolemaic account, Galileo's observations of Jupiter's satellites proved the truth of the Copernican theory.

The argument above is open to the objection that it makes the questionable assumption that

A. whoever first observed something inconsistent with the truth of the Ptolemaic theory should be credited with having proved that theory false

B. there are some possible observations that would be inconsistent with the account given by the Copernican theory but consistent with the account given by the Ptolemaic theory

C. the Ptolemaic and Copernican theories, being inconsistent, cannot both be based on exactly the same evidence

D. numerous counterexamples were necessary in order to show the Ptolemaic theory to be false

E. the Ptolemaic and Copernican theories, being inconsistent, cannot both be false

Q33 to Q36: (This passage is excerpted from material published in 1997.)

Whereas United States economic productivity grew at an annual rate of 3 percent from 1945 to 1965, it has grown at an annual rate of only about 1 percent since the early 1970's. What might be preventing higher productivity growth? Clearly, the manufacturing sector of the economy cannot be blamed. Since 1980, productivity improvements in manufacturing have moved the United States from a position of acute decline in manufacturing to one of world prominence. Manufacturing, however, constitutes a relatively small proportion of the economy. In 1992, goods-producing businesses employed only 19.1 percent of American workers, whereas service-producing businesses employed 70 percent. Although the service sector has grown since the late 1970's, its productivity growth has declined.

Several explanations have been offered for this decline and for the **discrepancy** in productivity growth between the manufacturing and service sectors. One is that traditional measures fail to reflect service-sector productivity growth because it has been concentrated in improved quality of services. Yet traditional measures of manufacturing productivity have shown significant increases despite the under-measurement of quality, whereas service productivity has continued to stagnate. Others argue that since the 1970's, manufacturing workers, faced with strong foreign competition, have learned to work more efficiently in order to keep their jobs in the United States, but service workers, who are typically under less global competitive pressure, have not. However, the pressure on manufacturing workers in the United States to work more efficiently has generally been overstated, often for political reasons. In fact, while some manufacturing jobs have been lost due to foreign competition, many more have been lost simply because of slow growth in demand for manufactured goods.

Yet another explanation blames the federal budget deficit: if it were lower, interest rates would be lower too, thereby increasing investment in the development of new technologies, which would spur productivity growth in the service sector. There is, however, no dearth of technological resources; rather, managers in the service sector fail to take advantage of widely available skills and machines. High productivity growth levels attained by leading-edge service companies indicate that service-sector managers who wisely implement available technology and choose skillful workers can significantly improve their companies' productivity. The culprits for service-sector productivity stagnation are the forces—such as corporate takeovers and unnecessary governmental regulation—that distract managers from the task of making optimal use of available resources.

Q33: Which of the following, if true, would most weaken the budget-deficit explanation for the discrepancy mentioned in the passage?
A. Research shows that the federal budget deficit has traditionally caused service companies to invest less money in research and development of new technologies.
B. New technologies have been shown to play a significant role in companies that have been able to increase their service productivity.
C. In both the service sector and manufacturing, productivity improvements are concentrated in gains in quality.
D. The service sector typically requires larger investments in new technology in order to maintain productivity growth than dose manufacturing.
E. High interest rates tend to slow the growth of manufacturing productivity as much as they slow the growth of service-sector productivity in the United States.

Q34: The passage states which of the following about the effect of foreign competition on the American manufacturing sector since the 1970's?
A. It has often been exaggerated.
B. It has not been a direct cause of job loss.
C. It has in large part been responsible for the subsequent slowing of productivity growth.
D. It has slowed growth in the demand for manufactured goods in the United States.
E. It has been responsible for the majority of American jobs lost in manufacturing.

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Q35: It can be inferred from the passage that which of the following was true of the United States manufacturing sector in the years immediately prior to 1980?
A. It was performing relatively poorly.
B. It was in a position of world prominence.
C. It was increasing its productivity at an annual rate of 3 percent.
D. It was increasing its productivity at an annual rate of 1 percent.
E. Its level of productivity was higher than afterward.

Q36: The author of the passage would be most likely to agree with which of the following statements about productivity improvements in United States service companies?
A. Such improvements would be largely attributable to efficiencies resulting from corporate takeovers.
B. Such improvements would depend more on wise implementation of technology than on mangers' choice of skilled workers.
C. Such improvements would be more easily accomplished if there were fewer governmental regulations of the service sector.
D. Such improvements would require companies to invest heavily in the development of new technologies.
E. Such improvements would be attributable primarily to companies' facing global competitive pressure.

Q37: Because mining and refining nickel is costly, researchers have developed an alternative method for extracting nickel using Streptanthus polygaloides, a plant that absorbs and stores nickel form the soil as it grows. The researchers incinerated a crop of Streptanthus they grew in nickel-rich soil. By chemically extracting nickel from the ash, they produced 100 pounds of nickel per acre of land at a total cost per pound slightly above that of current mining.

Which of the following, if true, most strongly supports the conclusion that the use of Streptanthus to extract nickel will be commercially adopted?

A. The season in which the researchers grew Streptanthus was an unusually favorable one, with the right amount of precipitation to maximize the growth rate of Streptanthus.

B. Because lowering the concentration of nickel in the soil can make land much better for agriculture in general, a plot on which Streptanthus has been grown and harvested can be sold for substantially more than it cost.

C. More air pollution is generated for each pound of nickel produced by extracting it from Streptanthus than is generated using conventional mining and refining.

D. The land on which the researchers planted Streptanthus was unusually free of the various weeds that can compete with Streptanthus for water, nutrients, and sunlight.

E. It is extremely rare for soil to contain higher concentrations of nickel than the concentrations present in the researchers' experimental plot.

Q38: The normative model of strategic decision-making suggests that executives examine a firm's external environment and internal <u>conditions, and in using the set of objective criteria they derive from these analyses, can decide</u> on a strategy.

A. conditions, and in using the set of objective criteria they derive from these analyses, can decide

B. conditions, and they use the set of objective criteria derived from these analyses in deciding

C. conditions and, in using the set of objective criteria derived from these analyses, deciding

D. conditions and, using the set of objective criteria derived from these analyses, decide

E. conditions and, in their use of the set of objective criteria they derive from these analyses, they decide

Q. 39 Biologists working in Spain say that their discovery of teeming life in a highly acidic river may not only broaden the search for life, or for evidence of past life, no other planets but also <u>show that a number of forms of microscopic life can adapt to conditions that scientists have long thought hostile to all but the hardiest bacteria</u>.

A. show that a number of forms of microscopic life can adapt to conditions that scientists have long thought hostile to all but the hardiest bacteria

B. may show that a number of forms of microscopic life is capable of adapting to conditions that scientists have long thought hostile to all bacteria but the hardiest ones

C. shows a number of forms of microscopic life to be capable to adapt to conditions that scientists have long thought had been hostile to all but the hardiest bacteria

D. showing that a number of forms of microscopic life is capable of adapting to conditions that scientists have long thought had been hostile to all but the hardiest bacteria

E. showing that a number of forms of microscopic life can adapt to conditions that scientists have long thought hostile to all bacteria but the hardiest

Q40: Boreal owls range over a much larger area than do other owls of similar size. The reason for this behavior is probably that the small mammals on which owls feed are especially scarce in the forests where boreal owls live, and the relative scarcity of prey requires the owls to range more extensively to find sufficient food.

Which of the following, if true, most helps to confirm the explanation above?

A. Some boreal owls range over an area eight times larger than the area over which any other owl of similar size ranges.

B. Boreal owls range over larger areas in regions where food of the sort eaten by small mammals is sparse than they do in regions where such food is abundant.

C. After their young hatch, boreal owls must hunt more often than before in order to feed both themselves and their newly hatched young.

D. Sometimes individual boreal owls hunt near a single location for many weeks at a time and do not range farther than a few hundred yards.

E. The boreal owl requires less food, relative to its weight, than is required by members of other owl species.

Q41:

In the nation of Partoria, large trucks currently account for 6 percent of miles driven on Partoria's roads but are involved in 12 percent of all highway fatalities. The very largest trucks—those with three trailers—had less than a third of the accident rate of single-and double-trailer trucks. Clearly, therefore, one way for Partoria to reduce highway deaths would be to require shippers to increase their use of triple-trailer trucks.

Which of the following, if true, most seriously weakens the argument?

A. Partorian trucking companies have so far used triple-trailer trucks on lightly traveled sections of major highways only.

B. No matter what changes Partoria makes in the regulation of trucking, it will have to keep some smaller roads off-limits to all large trucks.

C. Very few fatal collisions involving trucks in Partoria are collisions between two trucks.

D. In Partoria, the safety record of the trucking industry as a whole has improved slightly over the past ten years.

E. In Partoria, the maximum legal payload of a triple-trailer truck is less than three times the maximum legal payload of the largest of the single-trailer trucks.

QUANT ANSWERS

1. B
2. E
3. A
4. B
5. D
6. A
7. A
8. D
9. A
10. C
11. C
12. C
13. A
14. E
15. B
16. E
17. B
18. E
19. E
20. A
21. D
22. D
23. B
24. C
25. E
26. B
27. D
28. C
29. E
30. D
31. E
32. E
33. C
34. C
35. C
36. D

37. B

VERBAL ANSWERS

1. D
2. E
3. D
4. D
5. E
6. C
7. E
8. E
9. C
10. D
11. E
12. B
13. E
14. D
15. A
16. E
17. D
18. B
19. E
20. C
21. E
22. C
23. D
24. E
25. A
26. C
27. B
28. C
29. C
30. D
31. D
32. E
33. E
34. A
35. A
36. C
37. B
38. D
39. A
40. B
41. A