

E-YDS 2019

1. **(I)** In the past decade the construction and retro-fitting of individual homes to reduce energy and water use has grown explosively. **(II)** To bring in renewable power, solar panels are installed on buildings throughout the house and the energy is sent to a smart microgrid. **(III)** Yet applying green construction to multiple buildings at once may be an even better idea. **(IV)** Sharing resources and infra-structure could reduce waste, and moderate-income neighbourhoods could also bring cost savings and modern technology to people who would typically lack such opportunities. **(V)** Working at the neighbourhood level does add complexity to planning, but these efforts offer rewards that even green single-family homes cannot offer.

A) I B) II C) III D) IV E) V

2. **(I)** Spiders' silk is as strong as steel, stretchy, nontoxic and biodegradable, making it stand out among various materials. **(II)** However, a spider produces only a minuscule amount of silk and some are cannibalistic, so they are not easy to farm. **(III)** Petroleum-derived fibers used in clothing such as nylon can be a substitute for silk. **(IV)** For decades scientists have tried to mimic the silvery strands to use for athletic gear and bulletproof vests, but their synthetic fibers have fallen short. **(V)** Now a team has coaxed bacteria to produce silk as tough and elastic as the natural version.

A) I B) II C) III D) IV E) V

3. **(I)** Aggression refers to any act that is intended to cause pain, suffering, or damage to another person. **(II)** While aggression is primarily thought of as physical, verbal attacks aimed at causing psychological harm also constitute aggression. **(III)** The key component in aggression is that it is deliberate. **(IV)** Theories about the nature and causes of aggression vary widely in their emphases. **(V)** Accidental injuries are not forms of aggression.

A) I B) II C) III D) IV E) V

4. **(I)** Large mammals have slow heartbeats and long lives and small ones have short lives and fast heartbeats. **(II)** But not all mammals are large - they range in size from tiny shrews and bats to elephants and whales. **(III)** Because of this, no matter what size a mammal is, it has the same average number of heartbeats in a lifetime - about half a billion. **(IV)** This is known as "the rate of living hypothesis" and it applies to all mammals except humans. **(V)** Improvements in medicine and hygiene have extended our life expectancy so that we now get through more than five times as many heartbeats in a lifetime than all other mammals.

A) I B) II C) III D) IV C)V

5. **(I)** It takes more than a great idea to run a successful enterprise. **(II)** Opening and running a business requires extensive analysis not only at the planning phase, but also on an ongoing basis throughout the entire lifespan of a business venture. **(III)** Profit is the income of an enterprise, which is calculated simply as revenues after costs are deducted. **(IV)** The entrepreneur must look at internal and external factors to make informed decisions. **(V)** This is especially important today, when external factors such as the Internet play an important role.

A) I B) II C) III D) IV E) V

6. (I) The fifteenth century saw transformations in the nature of costume and culture that are key to our understanding of Western fashion. **(II)** Up until the fifteenth century, the clothing customs in the West had been determined by tradition, the availability of certain kinds of fabric and the skill of the tailor. **(III)** Several important trends came together in the late fifteenth century to mark a real change in costume styles across Europe. **(IV)** For example, the long wool garments worn by Europeans in the sixteenth century were not that different from those worn in the fourteenth century. **(V)** During the fifteenth century, however, the nature of European costume began to emphasise fashion -women preferred to wear gowns that fit closely across the upper body, and men chose to wear hose and breeches on their legs.

A) I B) II C) III D) IV E) V

7. (I) Earwax is generally considered something to get rid of, but we are now discovering that it is more than just another bodily secretion, with a surprising advantage. **(II)** Earwax has waxy compounds that clean the ear canal and protect it from drying out, as well as killing bacteria and trapping foreign bodies like dust and fungal spores. **(III)** All sorts of secrets about you are collected in earwax, so it can be used to identify a person. **(IV)** With enough detailed probing of the earwax, it could be possible to reveal not only someone's identity, but information about where they have been, what they have eaten and what they were exposed to. **(V)** From drug tests to disease diagnosis, the potential of its unique chemical signature is starting to be put to good use.

A) I B) II C) III D) IV E) V

8. (I) Marie Curie was the first woman to receive the Nobel Prize. **(II)** She received the Nobel Prize in Physics for her work on radioactivity in collaboration with her husband, Pierre Curie and A.H. Becquerel. **(III)** Thus, the 1903 prize in physics was shared by all three individuals, and was the first of Curie's Nobel Prizes. **(IV)** Five prizes were conferred in the areas of physics, chemistry, physiology or medicine, economic sciences, and peace. **(V)** Marie Curie went on to be the first person ever to be awarded two Nobel Prizes, and is one of only two individuals to have been awarded a Nobel Prize in two different fields.

A) I B) II C) III D) IV E) V

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9. (I) Lightning is a sudden electrostatic discharge between regions of differing electric potential. **(II)** A lightning strike might be deadly for humans, so it is advised to either stay indoors or find a safe place to protect ourselves from lightning during stormy weather. **(III)** It has been observed on Venus, Jupiter, and Saturn, as well as Earth. **(IV)** In space, there is little material to act as a conductor of charge; therefore, traditional lightning seems to be rare. **(V)** Processes similar to lightning have been observed in electromagnetic fields around black holes as well as in highly ionized clouds of gas and dust called nebulae.

A) I B) II C) III D) IV E) V

10. (I) Today, irrigation machines are enormous metal sprinklers, higher than a house and longer than three or four semitrucks. **(II)** The type of the irrigation technique farmers use influences the amount and quality of crops. **(III)** These machines can pump huge amounts of water out of the lakes and spray it over entire fields. **(IV)** But long ago, farmers had a simpler machine to get water from canals and pour it onto their crops. **(V)** It was actually one of the first farm machines in the history of agriculture.

A) I B) II C) III D) IV E) V

11. (I) Many people think of memory as a place in which information is stored until it is needed, much like a library. (II) Unfortunately, this metaphor is misleading because it implies a static process. (III) Nothing really happens to library books while sitting on the shelf: once one has the book, the contents are identical to the last time the book was consulted. (IV) Memory works like other cognitive processes: people use whatever cues and information are available to achieve a sensible interpretation. (V) In contrast, human memory is a dynamic, reconstructive set of processes that enable previously encoded information to affect current and future performance.

A) I B) II C) III D) IV E) V

12. (I) If you find the quantum world confusing, you are not alone. (II) A recent study shows that physicists disagree over the picture of reality that quantum mechanics describes, and that many of them do not even care. (III) Quantum mechanics refers to the mathematical description of the motion and interaction of subatomic particles in terms of quanta. (IV) There is no consensus: 39 per cent support the conventional picture of quantum mechanics, while 25 per cent support alternatives and 36 per cent have no preference at all. (V) In addition, many are not sure they understand what certain interpretations describe.

A) I B) II C) III D) IV E) V

13. (I) Although excessive exercise can cause short-term fatigue, long-term tiredness is associated with too little activity. (II) A University of Georgia review of research found that 90 percent of studies conclude that people who regularly exercise report less fatigue than those who do not. (III) Tired people increase their effort to make up for their diminished capability when they want to accomplish a task. (IV) Exercise increases levels of energy-promoting and mood-enhancing neurotransmitters such as dopamine, norepinephrine and serotonin. (V) It also resets the SCN, the part of the brain that regulates sleep and wakefulness hormone, and it also reduces fat stores, which seem to be associated with long-term fatigue.

A) I B) II C) III D) IV E) V

14. (I) Prodigies are defined by their childhood ability to perform at adult professional levels in a particular area. (II) Some experts argue that prodigies benefit from years of intense, early practice, usually encouraged by ambitious parents. (III) Many parents, in vain, make academic success programmes for their children with hopes that they may turn out to be a prodigy. (IV) Others highlight prodigies' innate abilities such as a heightened attention to detail and exceptional working memory. (V) Prodigiousness seems to arise from a combination of this cognitive profile described also by psychologists.

A) I B) II C) III D) IV E) V

15. (I) Groups in conflict can try to improve intergroup relations by communicating directly about the conflict and attempting to resolve it, and this can be done through several strategies. (II) For example, to break the deadlock, a third party can be brought in for mediation between the groups. (III) To be effective, mediators should have power and must be seen by both groups to be impartial, and the groups should already be fairly close in their positions. (IV) Although mediators have no power to impose a settlement, they can help in several important ways. (V) Biased mediators are ineffective because they are not trusted, and weak mediators are ineffective because they exert little pressure on intransigent groups to be reasonable.

A) I B) II C) III D) IV E) V

16. (I) Using natural products such as apple skins and lemon juice as food additives causes problems in large-scale manufacturing situations. (II) Consumer demand for manufactured food that has a high uniform quality with a long shelf life and that is as close to the natural state as possible has been the major determinant for an increase in the use of additives. (III) First, the desired active ingredients in natural products are not consistent in quality, properties, or concentration in their natural state. (IV) Furthermore, they may bring both undesirable flavour attributes, associated with their source, to the finished product, and microbiological contamination. (V) For example, using orange or lemon juice to acidify a food inevitably brings the flavour of oranges or lemons, which may not be desired in the finished product.

A) I B) II C) III D) IV E) V

1. B
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5. C
6. C
7. B
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9. B
10. B
11. D
12. C
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14. C
15. D
16. B

