

**BANQUE D'ÉPREUVES DUT-BTS  
-SESSION 2018-**

**ÉPREUVE D'ANGLAIS**

**Dictionnaire et appareils électroniques interdits**

**Réponse juste : +3**

**Réponse fausse : -1**

**Pas de réponse : 0**

**CODE ÉPREUVE : 972**

**DURÉE DE L'ÉPREUVE: 2H**

1. Mr. Jones was feeling ill and could not \_\_\_\_\_ the seminar.
  - a. to attend
  - b. assist to
  - c. assist
  - d. attend
2. Neither the workers \_\_\_\_\_ their supervisors know when the new factory will open.
  - a. yet
  - b. and
  - c. nor
  - d. but
3. Yesterday's news of the company's \_\_\_\_\_ led to skyrocketing share values.
  - a. fusion
  - b. linking
  - c. agreeing
  - d. merger
4. Efficiency expert Ms. Holden often uses examples from \_\_\_\_\_ own experience to show the benefits of improved work-flow.
  - a. hers
  - b. she
  - c. her
  - d. herself
5. Trying to save money by using poor quality materials often \_\_\_\_\_ disaster.
  - a. results in
  - b. have results in
  - c. result from
  - d. results from
6. The customer service department has received \_\_\_\_\_ about the new model's battery life.
  - a. complain
  - b. complaining
  - c. complainers
  - d. complaints
7. The online learning program is designed to help staff practice \_\_\_\_\_ is taught in the training workshop.
  - a. which
  - b. that
  - c. how
  - d. what
8. Human resources anticipates 30 job openings \_\_\_\_\_ retirements in various departments in the coming year.
  - a. more so
  - b. because
  - c. due to
  - d. however
9. Several leading mobile phone manufacturers have \_\_\_\_\_ released images of next year's models.
  - a. soon
  - b. recently
  - c. shortly
  - d. earlier
10. Environmental activists continue to stress the need to reduce our \_\_\_\_\_ on nonrenewable energy sources.
  - a. depending
  - b. dependable
  - c. dependence
  - d. dependent

11. By this time next year, Bera Inc. \_\_\_\_\_ its market to include Asia.
- will have expanded
  - is expanding
  - will expand
  - is going to expand
12. The percentage of workers satisfied with their jobs has increased \_\_\_\_\_ since the elections.
- lightly
  - vaguely
  - little bit
  - slightly
13. I don't think I have \_\_\_\_\_ seen such a thorough report.
- yet
  - ever
  - still
  - never
14. The more I learn about this deal, the \_\_\_\_\_ I like it.
- less
  - fewer
  - lower
  - least
15. Tom has worked in Paris \_\_\_\_\_ his company relocated here 14 years ago.
- while
  - since
  - even
  - ever
16. Do you have a \_\_\_\_\_ for the courier service we should use?
- prefered
  - prefer
  - preference
  - preferable
17. The government is full of dishonest \_\_\_\_\_. I don't know how they got elected!
- politics
  - politicals
  - politicians
  - policies
18. The winter Olympics opening ceremony was spectacular, but it was \_\_\_\_\_ freezing.
- very
  - extremely
  - totally
  - absolutely
19. Recent reports show that we must prepare \_\_\_\_\_ a hostile takeover bid.
- for
  - to
  - over
  - on
20. However, we are very optimistic \_\_\_\_\_ our chances to resist it.
- for
  - about
  - in
  - to

21. I graduated from MIT. Where did you \_\_\_\_\_ university?
- attend
  - assist to
  - attend to
  - assist to
22. I love my job. I can't imagine \_\_\_\_\_ anything else.
- to do
  - do
  - doing
  - to doing
23. When Mark explained his symptoms, I suggested he \_\_\_\_\_ a doctor immediately.
- see
  - sees
  - see
  - is seeing
24. Surprisingly, Smith & Associates, \_\_\_\_\_ is a relatively new company on the scene, already has a government contract.
- that
  - what
  - who
  - which
25. \_\_\_\_\_ the client call, please tell them I'm tied up and will get back to them tomorrow.
- If
  - Provided
  - Should
  - Unless
26. Please let us know \_\_\_\_\_ we can do to increase our customer base.
- how
  - that
  - which
  - what
27. I'm so sick of the rain! I wish the weather \_\_\_\_\_ better.
- was
  - will be
  - is
  - were
28. \_\_\_\_\_ 1968 have we had so much snow.
- Since
  - Not since
  - Never since
  - In
29. He has lived in China \_\_\_\_\_ 50 years but still can't speak the language.
- yet
  - already
  - since
  - for
30. Paul \_\_\_\_\_ that they would join us after work.
- said me
  - told me
  - told
  - said

31. Holland \_\_\_\_\_ to be one of the prettiest countries in Europe.
- is said
  - says
  - said
  - is saying
32. The team really appreciates their supervisor. He \_\_\_\_\_ lunch brought in to congratulate them on their success.
- made
  - told
  - let
  - had
33. Frank Ludlow has made many \_\_\_\_\_ to science and will be awarded by the Academy of Sciences this year.
- medals
  - distinctions
  - research
  - contributions
34. The office manager has been able to account \_\_\_\_\_ the missing laptops and now the police will investigate.
- by
  - for
  - to
  - with
35. A \_\_\_\_\_ will be held before the conference so that we all understand what is expected of us.
- briefly
  - brief
  - briefed
  - briefing
36. We regret \_\_\_\_\_ your office of the changes to the program earlier and apologize for any inconvenience this may have caused.
- not to inform you
  - informing you
  - having informed you
  - to inform you
37. Now that he is no longer an intern he will have to \_\_\_\_\_ many more responsibilities.
- get to
  - take on
  - get up to
  - take in
38. Quarterly revenues are \_\_\_\_\_ reported to individual shareholders.
- unusually
  - rare
  - seldom
  - ever
39. We will post the first videos on our website \_\_\_\_\_ the week.
- at
  - on
  - until
  - within
40. I was just offered the job of my dreams, but I \_\_\_\_\_ because the salary wasn't high enough.
- turned it up
  - put it off
  - turned it down
  - picked it up

41. Mary Anne & Pauline cannot stand \_\_\_\_\_. They haven't spoken in years.
- them
  - themselves
  - each other
  - herselves
42. We do our utmost to \_\_\_\_\_ customer satisfaction.
- assure
  - ensure
  - insure
  - relieve
43. The new software should \_\_\_\_\_ to maintain better records of our clients purchasing history.
- enable
  - enable us
  - permit
  - let us
44. Share prices have \_\_\_\_\_ since the announcement of the government contract.
- raised up
  - risen up
  - gone up
  - increased up
45. But I lent you that book 2 months ago! Haven't you finished it \_\_\_\_\_?
- already
  - now
  - soon
  - yet
46. The poet Maya Angelou \_\_\_\_\_ her new collection of poems last week, to resounding applause.
- has presented
  - presented
  - did present
  - presents
47. Manufacturing cannot resume \_\_\_\_\_ the safety inspections have been completed.
- that
  - upon
  - until
  - while
48. Adolescents today are so \_\_\_\_\_!
- unresponsible
  - disresponsible
  - misresponsible
  - irresponsible
49. For \_\_\_\_\_ interested in learning graphic design, a series of workshops will be held next semester.
- those
  - they
  - who
  - them
50. The above-mentioned workshops will be open to \_\_\_\_\_ wishes to attend.
- whomsoever
  - who
  - whosoever
  - whom

51. The “i” in the word “engine” rhymes with the ‘i’ in \_\_\_\_\_.
- practice
  - satellite
  - receive
  - believe
52. \_\_\_\_\_ robots isn’t just for engineers.
- Doing
  - To make
  - Making
  - To do
53. \_\_\_\_\_ the patient waits for treatment, the more brain tissue dies.
- The long time
  - The longer
  - If it is a long time
  - The more long time
54. Rather than try to develop everything with \_\_\_\_\_ own R&D, the firm hopes to form partnerships.
- her
  - his
  - it’s
  - its
55. There will be a large amount of unanticipated problems that they \_\_\_\_\_.
- saw would come
  - never saw coming
  - saw coming
  - see might come
56. A new \_\_\_\_\_ is being developed to transform wood into a material stronger than steel.
- process
  - proceed
  - processing
  - procession
57. The “ough” in “although” is the same as the “ough” in \_\_\_\_\_.
- rough
  - bought
  - though
  - thought
58. Lots of patients are not getting treatment \_\_\_\_\_.
- quite fast
  - too fast
  - enough fast
  - fast enough
59. US based companies have been \_\_\_\_\_ the development and production of their technologies.
- manufacturing
  - outsourcing
  - designing
  - creating
60. It is thought that \_\_\_\_\_ of solar activity might produce a mini Ice Age.
- reduce
  - to reduce
  - a reduction
  - reducing

61. Free Space Optical Communications links are based \_\_\_\_\_ light beams which deliver high speed connectivity.
- in
  - with
  - of
  - on
62. AI is able to achieve a superhuman level of play in 24 hours, after \_\_\_\_\_ the game from scratch.
- learning
  - learn
  - teaching
  - taught
63. As well as designing its own devices, the company also helps others \_\_\_\_\_ their ideas \_\_\_\_\_ products.
- turn/into
  - turn/off
  - fix/into
  - supply/into
64. They have developed a system which \_\_\_\_\_ smartphone cameras to spot objects hidden around corners.
- allows to
  - allow
  - enables
  - enable
65. The sound "ea" in the word "breathe" is the same as the sound "ea" in the word \_\_\_\_\_.
- threat
  - heat
  - break
  - heart
66. There is \_\_\_\_\_ other vehicle like this in existence.
- none
  - an
  - no
  - nothing
67. \_\_\_\_\_ solutions such as pilot goggles or tinted windows, reduce pilot visibility.
- Actual
  - Actually
  - Currently
  - Current
68. The use of high-power handheld lasers \_\_\_\_\_ at aircraft, has been an increasing safety concern.
- are aiming
  - aim
  - having been aimed
  - being aimed
69. The company has \_\_\_\_\_ not commented on the report.
- thus far
  - yet
  - already
  - to now
70. It is a system that enables autonomous vehicles and human drivers to communicate \_\_\_\_\_.
- together
  - each other
  - with each other
  - among themselves



71. A self-driving vehicle can signal \_\_\_\_\_ it is operating in autonomous driving mode.
- to
  - whether
  - which
  - this
72. Measurements \_\_\_\_\_ at five-minute intervals.
- have recorded
  - is recorded
  - were recorded
  - will recorded
73. Corn biofuel production consumes water, \_\_\_\_\_ algae biofuel production can filter water.
- whereas
  - nevertheless
  - despite the fact that
  - instead of
74. If algae biofuel is \_\_\_\_\_ comprehensive solution, why are we still producing corn biofuel?
- so
  - such a
  - such
  - very
75. According to the article, IoT attack activity has grown 275% from the \_\_\_\_\_ 6-month period.
- previously
  - prior
  - latest
  - next
76. He succeeded very well \_\_\_\_\_ hard work.
- because he
  - by dint of
  - in spite of
  - as well as
77. The FBI claim that the toys are fitted with data gathering tools that can record \_\_\_\_\_ conversations.
- childrens
  - child's
  - children's
  - childrens'
78. This technology firm has launched \_\_\_\_\_.
- a totally robotic new control interface
  - a new control interface totally robotic
  - a new totally robotic interface control
  - a totally new robotic control interface
79. The wristbands are designed so that they can fit the users, \_\_\_\_\_ age and size.
- matching with
  - adapted with
  - compared to
  - regardless of
80. It is possible to control robots using wristbands on \_\_\_\_\_ arm.
- both
  - either
  - neither
  - their

81. Some of the statues \_\_\_\_\_ with the help of 3D scanners.
- have been reconstructed
  - have reconstructed
  - has been reconstructed
  - has reconstructed
82. She has received offers of donations since her post \_\_\_\_\_ viral.
- went
  - has gone
  - will go
  - has been
83. He \_\_\_\_\_ get familiar with the software.
- wanted that his students
  - wanted his students to
  - want his students to
  - wants them
84. It is \_\_\_\_\_ to clean the filters regularly.
- uncritical
  - critique
  - critic
  - critical
85. We will be able to make contact with them \_\_\_\_\_ in on their radio communications.
- by listening
  - if listen
  - by listen
  - by hearing
86. Aliens could have their own language as well as stereovision, \_\_\_\_\_ is needed to hunt.
- what
  - that
  - which
  - this
87. There is a hook on the backpack \_\_\_\_\_ you don't want to carry your water bottle in your hand.
- in case
  - in the case
  - in event
  - unless
88. Computers are everywhere, \_\_\_\_\_ us in every possible way.
- insisting
  - assisting
  - attending
  - help
89. This algorithm exists in many variants today for a \_\_\_\_\_ of applications.
- survey
  - scale
  - fan
  - range
90. Too \_\_\_\_\_ really know what really powers the internet.
- much
  - many
  - few
  - little

91. Can you explain how to \_\_\_\_\_ reliable storage and retrieval of data?
- assure
  - ensure
  - permit to
  - enable to
92. Memory storage has been at the \_\_\_\_\_ of computer development.
- core
  - basic
  - bases
  - middle
93. Cloud storage has given a \_\_\_\_\_ dimension to data storage.
- furthest
  - further
  - farther
  - farthest
94. How \_\_\_\_\_ do you click on "like"?
- far
  - soon
  - often
  - many
95. Wifi has made internet \_\_\_\_\_ for everybody despite geographical and infrastructural obstacles.
- impossible
  - feasible
  - unavailable
  - accessibility
96. AI will eliminate jobs with repetitive tasks, enabling people \_\_\_\_\_ more fulfilling aspects of their job.
- to focus on
  - to focus
  - focusing
  - who focus on
97. Computer chip cards can now mine bitcoin 50 \_\_\_\_\_ than conventional video graphics cards.
- more times fast
  - times fast
  - times faster
  - times fastest
98. The huge rocket successfully launched \_\_\_\_\_ February 6th, \_\_\_\_\_ 3:45pm
- at/on
  - in/to
  - on/at
  - to/at
99. \_\_\_\_\_ three thrusters were expected to land on Earth.
- Every
  - Each of
  - All of
  - All
100. A humanoid robot \_\_\_\_\_ shut down a gas leak in an experimental exercise.
- has managed
  - has succeeded
  - managed to
  - succeeded to

**Reading comprehension. Choose the best answer for each blank or question below:**

**Text 1 - *The low cost mini satellites bringing mobile to the world* by Tim Bowler, BBC News.**

Large chunks of the planet are still out of reach of mobile phone signals - billions are still without access to digital communications. But this could change thanks to **shrinking** satellite sizes and costs.

Lower-cost, space-based mobile phone services will soon be a reality thanks to one firm's fleet of nano-satellites that will bounce your voice or text signal from one spacecraft to the next and finally down to the person you're calling.

"People were thinking of using nano-satellites for Earth imagery but nobody had thought of using them for voice or text communications," says Israeli former fighter pilot Meir Moalem, the chief executive of Sky and Space Global (SAS). His firm is aiming to offer customers mobile phone connections via a constellation of 200 shoebox-sized satellites weighing just 10kg (22lb) each.

The fleet is set to be operational by 2020 and will provide text, voice and data transfer services to the Earth's equatorial regions - including much of Latin America and Africa - to a market of up to three billion people.

"Affordable mobile services are critical for the economic and social development of many developing countries," says Mr Moalem, who believes SAS's nano-satellites will shake up the space-based communications market.

"Our total constellation costs just \$150m (£108m). That's less than the cost of a single standard communications satellite. This is what we mean when we talk of a disruptive technology."

But SAS is just one of a number of companies with big plans for space right now.

Perhaps the most ambitious is Elon Musk's SpaceX, which is aiming to build a huge 4,400-satellite constellation offering global internet coverage. It will be using its own Falcon-9 rockets to launch its fleet and plans to have the network operating by 2024.

OneWeb has an 800-satellite constellation set for 2020, again focused on global broadband, while Google and Samsung are also mulling similar initiatives.

With all these satellites, low-Earth orbit - an altitude of 2,000km (1,200 miles) or less above the planet - is becoming an increasingly crowded space. This could make future launches potentially difficult and dangerous with space debris.

Then there is the issue of finance. Not every planned constellation is going to find the investors with deep enough pockets to back it, though David Fraser, research director at APP Securities, says SAS could be "an attractive alternative option" given its low capital costs.

Vincent Chan, professor of electrical engineering and computer science at MIT, believes that satellite miniaturisation and cheaper launch vehicles mean that the "nano-sat is ready to serve the public". But, he adds, SAS's focus on voice and text services rather than broadband internet "suggests that the digital divide will be narrower but not disappear".

For its part, SAS is using a non-traditional method of getting its satellites into orbit. **They** will be air-launched in batches of 24 by Virgin Orbit, part of Richard Branson's Virgin group.

Virgin's modified Boeing 747-400 will fly up to 35,000ft (10,000m), then LauncherOne, a two-stage liquid oxygen-powered expendable rocket, will blast the payload into orbit.

It's one of a number of air-launch-to-orbit systems under development.

101. The text is mainly about:

- a. the miniaturization of satellites to produce images of Earth
- b. the miniaturization of satellites for voice and text communication
- c. SAS's competition with other similar companies
- d. The difficulties of space exploration

102. "Shrinking" in line 2 means getting:

- a. more powerful
- b. larger
- c. more economical
- d. smaller

103. Users will be able to connect via:
- one large satellite the size of 22 large shoe boxes
  - one miniature satellite weighing 10k
  - 22 satellites weighing a total of 10k
  - 22 satellites weighing 10k each
104. The fleet of satellites should be operational in 2020 and will cover:
- Latin America, Africa and Equador
  - Most of Latin America and Africa
  - South America and parts of Africa
  - All of Latin America and Africa
105. Mr Moalem believes that SAS's project will:
- disrupt communication lines already installed
  - revolutionize the communications market
  - interrupt the normal functioning of satellites
  - be considered as invasive technology
106. The companies which have big plans for space are:
- SAS, MIT, Virgin Orbit, Google, Samsung
  - SAS, SpaceX, OneWeb, APP Securities
  - SpaceX, Virgin Orbit, Google, Samsung
  - SAS, SpaceX, Virgin Orbit, Google, OneWeb, Samsung
107. According to the article, the most ambitious project is:
- SpaceX's
  - SAS's
  - Google's
  - OneWeb's
108. Future launches could be dangerous because:
- the technologies are not yet completely mastered
  - the competition between companies will be more important than safety
  - low Earth orbit will be crowded
  - the rockets are being built with cheap materials
109. LauncherOne is:
- an aircraft
  - a space shuttle
  - a payload
  - an air-launch-to-orbit system
110. **They** in the 5th line from the end of the text, refers to:
- SAS
  - non traditional methods
  - satellites
  - batches

**Text 2 - *Universal Basic Income: half of Americans think government should pay workers who lose out to Artificial Intelligence.* (by Kashmira Gander for Newsweek 2018).**

As robots become more sophisticated and replace humans in the workforce, Americans are split over whether (111)\_\_\_\_\_ who lose their jobs to artificial intelligence should receive a minimum income. The hypothetical universal basic income or UBI (112)\_\_\_\_\_ the federal government give every adult below a certain income threshold an annual allowance of money.

The survey of more than 3,000 U.S. adults showed that almost three-quarters predicted that artificial intelligence (AI) will lead to a loss of more jobs than it creates. (113)\_\_\_\_\_, some 48 percent of people support, and 52 percent oppose, the rollout of a UBI to safeguard workers who lose their jobs because of advances in AI, according to a new poll for Northeastern University. Those over 66 were least likely to support the UBI, (114) \_\_\_\_\_ 46 percent of millennials.

Of respondents with a bachelor's degree or higher, almost 60 percent did not support a UBI, while just under half of those without a college education opposed the idea. More than one in four (115)\_\_\_\_\_ who identified as Republicans supported a UBI, a number that rose to one in six for those who said they were Democrats. Asked if they would be willing to pay higher personal taxes to fund a UBI, 46 percent of those who (116)\_\_\_\_\_ the proposal said yes.

Dr. Luke Martinelli of the University of Bath's Institute for Policy Research, who is an expert in UBI, told Newsweek that there is a lot of uncertainty around whether UBI is the best way to deal with labor market disruption arising from automation.

"We don't really know how labor markets will adjust to technological change," he said. "In previous waves of automation and technological innovation, new jobs (117)\_\_\_\_\_ to offset the destruction of old ones.

"More likely than mass technological unemployment is that automation will lead to increased polarization between 'lovely' and 'lousy' jobs, and increasing numbers of workers in precarious and intermittent (118)\_\_\_\_\_,"

Martinelli said.

Maja Korica, an associate professor of organization and human resource management at the University of Warwick, told Newsweek that only companies benefit from an investment in AI and the loss of (119) \_\_\_\_\_ jobs.

The potentially devastating impact of (120)\_\_\_\_\_ should therefore be offset with a "robot tax," she argued. In turn, this could fund a UBI.

- |                           |                     |                     |                    |
|---------------------------|---------------------|---------------------|--------------------|
| 111. a. those             | b. these            | c. them             | d. those ones      |
| 112. a. have              | b. would have       | c. had              | d. would give      |
| 113. a. Therefore         | b. Despite          | c. Nevertheless     | d. Even            |
| 114. a. instead of        | b. in spite of      | c. compared with    | d. compared        |
| 115. a. respondents       | b. answers          | c. responses        | d. ratios          |
| 116. a. opposed           | b. favored          | c. hoped            | d. criticized      |
| 117. a. have been created | b. had been created | c. might be created | d. will be created |
| 118. a. employees         | b. employers        | c. employs          | d. employment      |
| 119. a. thousands         | b. thousands of     | c. a thousand of    | d. thousand        |
| 120. a. that              | b. this             | c. them             | d. those           |

**Text 3 - *Red Skittles Spilling Onto Wisconsin Highway Were Headed for Cattle Feed (National Geographic Magazine)***

The candy leaking out of a (121) \_\_\_\_\_ box on the back of a truck was being used as an alternative to corn. When a flatbed pickup truck carrying a large box of red Skittles spilled its contents on a Wisconsin road last week, it brought (122) \_\_\_\_\_ light a bigger issue—the candy’s destination.

On Tuesday, January 17, the Dodge County Sheriff’s Office posted on Facebook that they found (123) \_\_\_\_\_ red Skittles covering a county highway. Mars, the candy’s (124) \_\_\_\_\_ company, confirmed that the Skittles were not going to be packaged and sold because they (125) \_\_\_\_\_ the classic letter ‘S’ marking each piece of candy. Instead, the sheriff’s office said the candy was going to be added to feed for cattle, a practice that Eater says has been going on for (126) \_\_\_\_\_.

The Skittles on the truck in Wisconsin ended up on the ground because rain soaked the box they were in, (127) \_\_\_\_\_ give way. The sheriff’s office was brought in to help clean up the mess, and Dodge County Sheriff Dale Schmidt told CNN affiliate WISN that the candy’s distinct smell helped them identify what it was.

In 2012, Reuters reported that corn alternatives were in high demand in places where feed corn for cattle was becoming very expensive or unavailable. Using an alternative like candy could (128) \_\_\_\_\_ of 10 to 50 percent for cattle farm operators, though prices for corn alternatives then began to increase as well.

Eater’s article also investigates whether a livestock diet that has candy mixed into it is healthy for cattle. While Marilyn Noble of the American Grassfed Association said in a Marketplace article that “cows were meant to eat grass, not candy,” John Waller, a University of Tennessee animal (129) \_\_\_\_\_ professor, said in a Live Science article a candy-based diet for cattle is fine and also helps the environment by reducing the amount of candy waste that (130) \_\_\_\_\_ in landfills.

- |      |                      |                             |                           |                          |
|------|----------------------|-----------------------------|---------------------------|--------------------------|
| 121. | a. falling down      | b. fallen down              | c. collapsable            | d. collapsing            |
| 122. | a. about             | b. to                       | c. on                     | d. up                    |
| 123. | a. hundred thousands | b. hundreds of thousands of | c. two hundreds thousands | d. thousands of hundreds |
| 124. | a. cousin            | b. parent                   | c. headquarters           | d. subsidiary            |
| 125. | a. had missed        | b. would have missed        | c. were missing           | d. would miss            |
| 126. | a. decades           | b. decennials               | c. tens of years          | d. tens years            |
| 127. | a. making it to      | b. letting it               | c. permitting it          | d. causing it to         |
| 128. | a. give a savings    | b. yield a savings          | c. give a gain            | d. yield a gain          |
| 129. | a. nutriments        | b. aliments                 | c. nutritious             | d. nutrition             |
| 130. | a. ends up           | b. ending                   | c. end up                 | d. finish up             |

**Text 4 - *What Is a Personal Food Computer?—A farm the size of a desktop could change the way we grow food in cities. (Smithsonian.com)***

The personal food computer looks like a fish tank. It’s the right shape and size, but there’s no water. Inside the two-foot-long box, under glowing purple LED lights, lettuces and legumes **sprout up**, their roots, free of dirt, misted by digitally-controlled sprayers. It’s a tiny, low-water, climate-controlled agriculture system, designed for growing food in **cramped** city quarters. The machine is plugged into a network, so all the environmental information runs into a database, where other farmers can see how much water and light the plants are getting, and use that data to **tweak** the way they grow their own crops.

Call it open-source farming or data-driven agriculture. Either way, it’s a way to program how we grow what we eat. Caleb Harper, an engineer with a background in architecture and design, developed the personal food computer. The food computer plugs into the water and electricity in any building, and doesn’t need any other resources, which is why it makes sense in a house or a classroom. It uses shallow water culture and raft hydroponics to spray the plants’ airborne roots instead of saturating soil. Farmers can grow just about anything that they could in the ground, as long as it doesn’t get taller than four feet. Harper says his team has had good luck with greens and berries. He’s trying to get the cost of the system down to around \$300, so it would make sense for a classroom to buy one. Harper comes from a family of famers, so he understands scale and what it takes to grow crops commercially. But he’s not just trying to farm more efficiently. He thinks the biggest gap in the food system is in the way we communicate about growing, and he’s building tools to fix that. By building small, connected farms, and creating a network and a database, he wants to change the way farmers share information and grow their food.

There’s a **dearth** of young farmers in the U.S. The average age of farmers in this country is 58, according to the most recent census, and, especially as we move more toward urban agriculture to provide local food for people in cities,

there's going to be a need for farmers who are both digitally savvy and aware of what it takes to bring a crop to fruition.

Harper is working on two other models of urban farms that use the same principles and networked controls as the personal food computer. One is the size of a shipping container and could be used by a restaurant or an apartment building. The other, at 500 square feet, is industrial-sized, and could be used for commercial production.

Harper is launching the Open Ag Initiative, a new lab within the Media Lab, in September. The lab will pull in students, researchers and other faculty, as well as people from the tech and the agriculture industry, to work on the food computer and the network. Once he feels like he has the design for the food computer dialed in, he's going to make it available to anyone who wants to grow veggies aeroponically in their living room. Users will be able to download the specs, or order a kit, and **tinker**.

131. What does this article mainly say?

- a. Farmers must be tech savvy to survive.
- b. Traditional farming has no future.
- c. Farmers should have cheap access to technology
- d. Urban farming is a solution to feeding our population.

132. The word **sprout up** in line 2 is closest in meaning to:

- a. begin to grow
- b. shoot up
- c. grow quickly
- d. wither

133. The word **cramped** in line 4 is closest in meaning to:

- a. a pained muscle
- b. confined
- c. tightened
- d. strict

134. The word **tweak** in line 6 is closest in meaning to:

- a. increase
- b. pinch
- c. time
- d. perfect

135. According to the article, Caleb Harper

- a. is trained in agriculture
- b. is a farmer
- c. has the knowledge to design buildings
- d. is a developer

136. Food computers

- a. grow anything we want
- b. grow plants using soil and water
- c. grow plants taller than the average man
- d. grow plants that aren't very high

137. Caleb Harper's system

- a. isn't very expensive
- b. costs less than \$300
- c. costs more than \$300
- d. will cost nothing

138. The word **dearth** in line 19 is closest in meaning to

- a. abundance
- b. scarcity
- c. plenty
- d. few



139. Caleb Harper's goal in using this technology is
- a. to become rich and famous
  - b. to educate the world
  - c. to reduce the gap in the food system
  - d. become a farmer
140. The word **tinker** in the last line is closest in meaning to
- a. repair
  - b. play
  - c. DIY
  - d. create

**END OF TEST**