

國立中山大學 110 學年度 碩士暨碩士專班招生考試試題

科目名稱：科技英文【精醫聯合碩士班、精準所碩士班、醫科所碩士班甲組】

—作答注意事項—

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單選題(每題 3 分):

1. Farmers who grow organic produce and meat don't use _____ methods to fertilize, control weeds or prevent livestock disease.
(A) demographic (B) deliberate (C) voluntary (D) conventional
2. The unexpected appearance and explosion of a small asteroid over Russia's Ural Mountains on Friday the challenges astronomers face.
(A) exaggerates (B) highlights (C) undermines (D) overrules
3. A very large _____ of language use is made up of a small number of high frequency vocabulary.
(A) proponent (B) proposition (C) proportion (D) composition
4. The rise of communicative _____ and especially task-based approaches to language teaching and learning have led to a focus on communication and away from instruction in grammatical rules.
(A) consciousness (B) engineering (C) accuracy (D) competence
5. This is Josh's favorite band even though every song the band plays seems to _____ with anger.
(A) outrage (B) pulsate (C) discern (D) discharge
6. As Glasgow put it, "Legal constraints maintained _____ that worked against any single individual having too much power."
(A) an equilibrium (B) a preponderance (C) an orientation (D) a derangement
7. Under the pale blue sky the trees seemed visibly to _____: yesterday's bare branches swelled into bud and would be in leaf by tomorrow.
(A) hurtle (B) eclipse (C) slack (D) burgeon
8. Lady Luck is often believed to affect the _____ of individuals.
(A) fortuity (B) parody (C) catastrophe (D) dementia
9. "Y" is the _____ letter in the English alphabet.
(A) terminal (B) seminal (C) penultimate (D) semi-finale
10. The prices in the catalog include both state and national taxes _____ not delivery charges.
(A) but (B) neither (C) each (D) that
11. After _____ to build a new home in Victoria, Mr. Redmond hired an interior designer to assist him with decorating the house.
(A) decide (B) decides (C) decided (D) deciding
12. The city council has taken steps _____ improving air quality by introducing measures that limit factory pollution.
(A) out of (B) toward (C) owing to (D) versus
13. The organizer of the publicity convention said there is still _____ work to be done, but was not concerned about meeting the deadline.
(A) many (B) few (C) much (D) a lot

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14. The executive director has asked all production supervisors to monitor the work schedule _____ in the future.
(A) most attentive (B) attentive (C) more attentively (D) attention
15. _____ who wants to reserve a conference room for a meeting can simply e-mail Ms. Bloomberg in administration.
(A) Anyone (B) Others (C) Them (D) Nobody
16. Dr. Boyle does not generally see any patients _____ appointments, except for cases of emergency.
(A) beside (B) without (C) inside (D) under
17. The supervisor is skilled at managing the _____ balance between the needs of staff and those of upper management.
(A) sudden (B) delicate (C) lenient (D) vague
18. _____ the malfunctions with the Clarity Dishwasher are due to defects or low-quality materials is still being investigated.
(A) So (B) Whether (C) While (D) Among
19. Diagnostics are a _____ part of precision medicine. They can be used to screen patients for breakthrough therapies, detect certain conditions, especially cancer, earlier.
(A) critical (B) traditional (C) official (D) effectively
20. First principles thinking is the act of boiling a process down to the _____ parts that you know are true and building up from there.
(A) unnecessary (B) major (C) integrative (D) fundamental
21. First principles thinking is a fancy way of saying “think like a scientist.” Scientists don’t assume anything. They start with questions like, What are we absolutely sure is true? What has been _____?
(A) explored (B) proven (C) denied (D) debated
22. In practice, you don't have to simplify every problem down to the atomic level to get the benefits of first principles thinking. You just need to go one or two levels _____ than most people.
(A) boarder (B) smaller (C) deeper (D) higher
23. First principles thinking can be easy to describe, but quite difficult to practice. One of the primary _____ to first principles thinking is our tendency to optimize *form* rather than *function*.
(A) obstacles (B) blessings (C) stepping stones (D) information
24. If you want to enhance an existing process or belief, _____ improvement is a great option. If you want to learn how to think for yourself, reasoning from first principles is one of the best ways to do it.
(A) continuous (B) process (C) stops (D) shows
25. The critical information has to be on one page. The clinician has to be able to _____ it in one minute.
(A) plot (B) interpret (C) memorize (D) beat

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翻譯題：

1. The ability to engineer biological systems and organisms holds enormous potential for applications across basic science, medicine and biotechnology. Programmable sequence-specific endonucleases that facilitate precise editing of endogenous genomic loci are now enabling systematic interrogation of genetic elements and causal genetic variations in a broad range of species, including those that have not previously been genetically tractable. A number of genome editing technologies have emerged in recent years, including zinc-finger nucleases (ZFNs), transcription activator-like effector nucleases (TALENs) and the RNA-guided CRISPR-Cas nuclease system. The first two technologies use a strategy of tethering endonuclease catalytic domains to modular DNA-binding proteins for inducing targeted DNA double-stranded breaks (DSBs) at specific genomic loci. By contrast, Cas9 is a nuclease guided by small RNAs through Watson-Crick base pairing with target DNA, representing a system that is markedly easier to design, highly specific, efficient and well-suited for high-throughput and multiplexed gene editing for a variety of cell types and organisms (8 分).
2. Zika virus (ZIKV) is a mosquito-borne flavivirus (FLAV) that emerged in Brazil in 2015 and has rapidly spread to more than 50 countries worldwide. However, early, accurate, and specific point-of-care (POC) diagnosis of ZIKV is very difficult because most infected patients are asymptomatic or display nonspecific symptoms similar to those of other viral infections, and most of the analysis also requires instruments. Herein, an instrument-free ZIKV POC test using a drop of blood comprising a vial immunosensor, artificial nanozyme platinum/gold core-shell nanoparticles (Pt@Au NPs) as a signal probe, and a smartphone was developed to specifically detect ZIKV without cross-reaction with other FLAVs. A high sensitivity of 1 pg/mL ZIKV, desirable specificity, data storage, and geographic location surveillance were simultaneously achieved for the proposed POC test. Our POC test suitably met the urgent needs of ports of entry, airports, and endemic regions with stressed resources, as well as strict clinical requirements for ZIKV detection (8 分).
3. One is the rapid emergence of virtual care through digital tools such as telehealth and remote monitoring that have made it safer and more convenient for patients to connect with their doctors during the pandemic, and that is empowering individuals to take charge of their health in entirely new ways. Virtual care has the capacity to personalize, accelerate, and augment treatment and prevention, saving time and money while improving outcomes. The ability to engage patients without requiring an in-person visit to a clinic will help ensure that they receive the right level of care and enable healthcare facilities to better manage the flow of patients into clinics and emergency rooms (9 分).

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共 2 頁第 1 頁

一、選擇題（單選）（每題四分；共七十二分）

1. You'll need the store _____ to show proof of purchase if you want to return any items you bought.
(A) credit (B) guide (C) license (D) receipt
2. Spending most of his childhood in Spain, John, a native speaker of English, is also _____ in Spanish.
(A) promising (B) grateful (C) fluent (D) definite
3. The scientist _____ his speech to make it easier for children to understand the threat of global warming.
(A) estimated (B) documented (C) abolished (D) modified
4. One simple yet good way to _____ your love for your family is to express it directly in words.
(A) manifest (B) resemble (C) execute (D) instruct
5. Animals that stay in groups are more likely to find food and detect danger than a _____ animal—multiple pairs of eyes are better than one.
(A) contagious (B) rigid (C) distinctive (D) solitary
6. Due to the recession, it is not easy for people to get _____ paid jobs, even if they are highly educated and well-trained in the field.
(A) compatibly (B) decently (C) relevantly (D) virtually
7. You must try and hurry up because my patience is _____ out.
(A) turning (B) racing (C) pacing (D) running
8. If you exercise regularly, you might feel more energetic, as your blood _____ will be improved.
(A) tranquility (B) fragrance (C) fatigue (D) circulation
9. Remember that before you leave your workstation, always _____ your computer.
(A) shut out (B) shut up (C) shut down (D) shut in
10. Industrial waste must be cautiously handled, or it will _____ the public water supply.
(A) contaminate (B) manipulate (C) legitimate (D) facilitate
11. The reason there are no buses is because the drivers are on _____.
(A) hit (B) stop (C) leave (D) strike
12. I must _____ your pardon, I mistook you for somebody else.
(A) bid (B) beg (C) beggar (D) bide
13. The computer programmer felt _____ because he had to work under pressure all the time.
(A) broken up (B) carried away (C) stressed out (D) tore down
14. Those angry peasants held a sit-in _____ make their protests against the new policy.
(A) so as to (B) with a view to (C) according to (D) owing to
15. These teachers try to be _____ when they evaluate the integrated ability of their students.
(A) subjective (B) objective (C) intended (D) neglected
16. The professor nods his head because he _____ with my report.
(A) satisfies (B) is satisfied (C) satisfied (D) is satisfying

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17. It is _____ surprising that Frank flunked English. He never paid any attention in class.
(A) really (B) simply (C) nearly (D) hardly
18. Others still _____ genetic engineering of plants and animals as the greatest single technology that will feed the world.
(A) advocate (B) digest (C) calm (D) announce

二、翻譯題（英翻中）（共二十八分）

1. Primary consequences of Spinal Cord Injury (SCI) include loss or impairment of sensation and voluntary control of muscles. A related secondary consequence of the injury is chronic neuropathic pain. It is believed that neuropathic pain below the level of injury has a central origin, and is therefore also referred to as Central Neuropathic Pain (CNP). In 40% of SCI patients, pain is severe, persistently interfering with the activities of daily living. As a consequence of this, patient's sleep quality is reduced associated with high levels of anxiety and depression. The CNP following spinal cord injury not only affects patients' health status and quality of life but also has an economic impact on the patient and the wider society. (十分)
2. Physicians rely increasingly on a wide array of laboratory tests to solve clinical problems. However, laboratory data do not relieve the physician from the responsibility of carefully observing the patient. It is essential to appreciate the limitations of diagnostic tests. They often gain an aura of certainty regardless of the fallibility of the tests themselves, the instruments used in the tests, and the individuals performing the tests. Physicians must weigh the expense involved in laboratory procedures against the value of the information these procedures are likely to provide. (九分)
3. Rapid progress in information and communication technologies and the increasing popularity of healthcare-related applications has increased interest in the topic of intelligent medical care. This topic emphasizes the use of information and communication technologies to collect and analyze a variety of data in order to provide physicians and other healthcare professionals with clinical decision support. At present, so-called smart hospitals are the focal point of most intelligent-systems development activity, with little attention currently being focused on long-term care needs. (九分)