國立臺中教育大學 107 學年度教師專業碩士學位學程招生考試

美術專業試題

一、選擇題（每題 4%，共 80%）

1.根據帕森斯(M. J. Parsons)採認知心理學的觀點，探究美感經驗與藝術鑑賞的認知過程。他運用晤談的方式測試觀者對八幅名畫複製品的意見研究。所得的結果經過分析，建立「四向五階的美術鑑賞能力發展理論模式」。以下所述，何者為**非**？
(A)「四向」指研究的四個主題，題材、媒材、形式風格、判斷
(B)「五階」是將藝術鑑賞能力的發展分為五個階段，不同階段的兒童進行藝術鑑賞時有幾個不同特徵
(C)「主觀偏好」階段的藝術鑑賞特徵：會被色彩強烈的吸引
(D)「美與寫實」階段的藝術鑑賞特徵：認為繪畫的目的是將某些事物表現出來
(E)「自律」階段的藝術鑑賞特徵：對作品的評斷標準是寫實和技巧

2. Gardner 多元智能論中說明，具有「視覺空間智能」(spatial intelligence)者其求知的方式是透過對外在的觀察（運用肉眼）與對內在的觀察（運用心眼）來達成。以下對於具有「視覺空間智能」者之能力描述，何者為**非**？
(A)丈量或修正圖形訊息的能力
(B)準確的感覺視覺空間，並把內在的空間世界表現出來的能力
(C)能以三度空間來思考的能力
(D)能重現、轉變或修飾心像，隨意操控物件的位置的能力
(E)具有對色彩、線條、形狀、形式、空間和它們之間關係的高度敏感性

3.根據多元智能理論，將國語科課文「截竿進城」設計成統整多種智能的教學活動。以下何者屬於「空間智能」的設計？
(A)當借鋸子的人出現之後，這個故事可能會有什麼改變？請用不同的結尾改寫故事
(B)按故事情節發展，分成四段表演「截竿進城」的故事
(C)用數學應用題的方式，寫出「截竿進城」的內容
(D)朗讀故事內容，並按故事內容選用熟悉的音樂當背景，襯托故事的情節
(E)把「截竿進城」的課文情節畫成若干幅連環圖

4.下列中國畫家所提畫論，何者為**非**？
(A)顧愷之：妙想遷得

（背面尚有試題）

(B)石濤：我自用我法

(C)范寬：外師造化，中得心源

(D)李唐：山水以形媚道

(E)趙孟頫：以書入畫

5.對於西方繪畫材料技法的敘述，下列何者**錯誤**？

(A)油畫技法主要可分為透明畫法及直接畫法

(B)達文西(Da Vinci)擅用暈塗法(sfumato)創作

(C)克林姆(Klimt)結合金箔裝飾與寫實技法創作

(D)壁畫分濕壁畫、乾壁畫，乾壁畫耐久性堅固性較佳

(E)凡‧艾克(Jan Van Eych)據傳將傳統油畫溶劑加以改良，是繪畫史最大的貢獻

6.波提切利(Sandro Botticelli, 1445~1510)作品＜La Primavera＞，依作媒材屬於那類作品？

(A) Tempera

(B) Oil Painting

(C) Gouache

(D) Fresco

(E) Pastel

7.下列畫家中何者**不屬於**超現實主義畫家？

(A) Dali, Salvador

(B) Magritte, René

(C) Chagall, Marc

(D) Balla, Giacomo

(E) Chirico, Giorgio

8.下列畫家與代表作品何者**錯誤**？

(A)黃公望—富春山居圖

(B)范寬—萬壑松風圖

(C)陳澄波—嘉義公園

(D) Jan van Eych-Portrait of Arnolfini and his Wife

(E) Honore Daumier-The Third-Class Carraige

9.臺灣在日本統治時代的後半期具代表性之臺灣雕塑家中，融合西洋技巧與本土

題材表現臺灣鄉土情懷，可被稱為「臺灣近代雕塑之父」的是？
(A)黃土水
(B)楊英風
(C)蒲添生
(D)陳夏雨
(E)黃清呈

10.針對包浩斯(Bauhaus)開始設置的概念下列何者正確？
　(A)大戰後德國政府欲促成工業的發達
　(B)是現代設計教育的濫觴
　(C)注重建築造型與實用機能合而為一
　(D)結合藝術與技術，將藝術家、工匠與工業之間的界線抹除
　(E)以上皆是

11.關於唐三彩的敘述下列何者**錯誤**？
　(A)是一種低溫(850℃-950℃)燒成的釉陶器
　(B)不以實用為主，主要是隨葬品，如冥器和俑等
　(C)作品種類很多，有人物、動物和器物等
　(D)因只能用三種色彩，故名唐三彩
　(E)作品造型，反映了當時社會的風貌和時代特徵

12.臺灣原住民的石板屋建築可列為世界重要文化遺產，傳統上屬於？
　(A)卑南族與布農族
　(B)凱達格蘭族與賽夏族
　(C)魯凱族與排灣族
　(D)阿美族與達悟族
　(E)邵族與噶瑪蘭族

13.臺灣原住民中設計與製作拼板舟工藝聞名的是？
　(A)魯凱族
　(B)賽夏族
　(C)布農族
　(D)泰雅族
　(E)達悟族

（背面尚有試題）

14.以下何者**不屬於**後現代主義創作取向的特點？
   (A)只重視媒材特殊性
   (B)接受多元化觀點的探究
   (C)強調場域效應特殊性
   (D)打破藝術高低層級的分別
   (E)融合生活與藝術的界線

15.右圖為捷克海報設計藝術家慕夏(Alfonse Mucha)作品，請問此一作品的表現風
   格屬於下列何種設計藝術派別？
   (A)美術工藝運動
   (B)新藝術運動
   (C)裝飾藝術運動
   (D)包浩斯運動
   (E)前衛運動

16.國立臺灣博物館的立面圓柱高九公尺，上承連續的額盤，柱身有多道凹槽，下
   接臺基，造型上是哪一種典型的柱式？
   (A)塔司干柱式(Tuscan Order)
   (B)愛奧尼柱式(Ionic Order)
   (C)多立克柱式(Doric Order)
   (D)科林斯柱式(Corinthian Order)
   (E)複合式柱式(Composite Order)

17.西洋美術史上用來描述「雕塑將重心集中在雕塑對象其中一側之腳上的姿態」
   的義大利文術語是？
   (A) Allegro
   (B) Grottesco
   (C) Fresco
   (D) Contrapposto
   (E) Rinascimento

18.油畫技法術語中的「impasto」是指？
  (A)暈染法
  (B)罩染法
  (C)厚塗法
  (D)底色法
  (E)直接畫法

19.以下對於繪畫中「點」概念所做的敘述，何者不符合康丁斯基(Wassily Kandinsky)
   1923年在《點、線到面》中的說法？
  (A)點是沒有部分又不占空間的非物質形式
  (B)點是繪畫藝術的「基本元素」，也是「最小的元素形式」
  (C)點在時間上是最簡短的形式
  (D)點是工具與物質材料平面首次碰撞的結果，而且是最基礎的平面
  (E)點能夠擴展，稍不注意，就會覆蓋整個基礎平面

20.臺南奇美博物館戶外空間的「阿波羅噴泉雕像」等比複製哪一個歐洲著名景點
   的雕像？
  (A)羅馬千泉宮
  (B)巴黎羅浮宮
  (C)波茨坦無憂宮
  (D)巴黎凡爾賽宮
  (E)西班牙阿爾漢布拉宮

二、簡答題（每題 10%，共 20%）
1.應用自然回收的美勞材料，不花錢又可激發腦力創造力，還可以響應環保愛護
  地球，請以紙盒、紙杯或紙盤等為素材，設計以中年級「創作」為主、二節（80
  分鐘）之教學活動，並依如下分項詳細說明之。
  (1)創作主題
  (2)活動目標
  (3)教學步驟（含時間）
  (4)評量方式

2.請簡述西方近代藝術、現代藝術和當代藝術的分期概況。

國立臺中教育大學 107 學年度教師專業碩士學位學程招生考試

英語專業試題

I. Vocabulary and Grammar: Choose the best answer.（Each 2%, Total 40%）

1. In California USA, the heat in the summertime often becomes _____. This strong heat can cause forest fires. Forest rangers go around the forest to make sure that fires have not started.

   (A) frigid   (B) frozen   (C) scorching   (D) scratched

2. The volcano began to erupt. Lava proceeded to _____ out. Because people had already been evacuated from the surrounding areas, no one died from this natural disaster.

   (A) spew   (B) stew   (C) stem   (D) stifle

3. The National Palace Museum in Taipei is very _____. One can take many hours to go through all the different galleries and look at the artifacts.

   (A) immense   (B) minuscule   (C) impending   (D) impassable

4. The runner put all his effort into running the marathon. He came in third place. He was awarded a _____ medal.

   (A) brook   (B) broth   (C) brooch   (D) bronze

5. While the teacher was explaining the science assignment, a student was waving his hands and acting like a monkey. The teacher looked at the student _____ and told him to stop the shenanigans.

   (A) snugly   (B) sternly   (C) sleekly   (D) scantily

6. After he received a large inheritance from his father, he foolishly went on a gambling _____ and lost all of his money.

   (A) pawn   (B) spree   (C) spawn   (D) splinter

7. Taichung Intercontinental Baseball Stadium is a good place to go to a baseball game and a concert. It is also a good location to listen to a candidate give a speech during a political _____.

   (A) raid   (B) realm   (C) rally   (D) repository

（背面尚有試題）

8. This year's bestselling novel features a sibling _____ between two brothers. The book deals with many issues surrounding their competition. It is a great book to read to better understand how to resolve this problem.

(A) rental   (B) rivalry   (C) revival   (D) reverie

9. In the mountain, a blast of wind caused the autumn leaves to swirl in the air and the birds to chirp merrily. This fall scene was quite _____.

(A) grim   (B) minimal   (C) imprudent   (D) picturesque

10. To show his hospitality, he offered his guest a bowl of fruits containing figs, dates, apricots, _____, and pomegranates.

(A) narcotics   (B) nuisances   (C) nectarines   (D) negligence

11. It is said that the pond _____ a bountiful supply of flounders. This attracts many fishermen to go to the pond to try their luck to catch some flounders.

(A) filled with   (B) has filled with
(C) had filled with   (D) has been filled with

12. The long-term goal of the company is to find more powerful ways to _____ solar energy. The purposes of this goal are to reduce costs and create a more eco-friendly environment.

(A) harness   (B) harnessing   (C) barricade   (D) barricading

13. The frog was sitting _____ on a lily pad. Suddenly, a mosquito flew by. The frog snatched the mosquito with its tongue and ate it. It then sat still again, waiting for its next prey.

(A) motion   (B) motionless   (C) motionlessly   (D) motionlessness

14. Jason just heard the news that the company _____ a crew to build a strong ship that will be the fastest and largest in the world. He wants to go and apply for the job.

(A) mustered   (B) has mustered
(C) had mustered   (D) has been mustering

15. The reckless driver lost control of his car on the _____ mountain road. The car drove over the cliff and plunged into the churning sea.

(A) wind   (B) windy   (C) windily   (D) windiness

16. When the Taichung Mass Rail Transit (Taichung MRT) opens, people can conveniently travel around the city. They can also easily go to the Taiwan High Speed Rail Station in Taichung to journey to the _____ parts of Taiwan.

    (A) northern and southern   (B) northerly and southerly

    (C) northerner and southerner   (D) north pole and south pole

17. The lacrosse team is on a _____ streak. Their mascot, the lion, is good at getting the fans to cheer for the team. The support from the fans encourages the team to play well.

    (A) win   (B) won   (C) winner   (D) winning

18. A cold front has moved into area. The sky is overcast, which causes people to feel _____. The meteorologist has forecasted a blizzard that will hit the area this evening.

    (A) glee   (B) gleefully   (C) gloom   (D) gloomy

19. Many people flock to hot springs on bitterly cold days to warm up and relax. A refreshing soak in a hot spring helps a person feel energetic and _____.

    (A) rejuvenate   (B) rejuvenated   (C) rejuvenating   (D) rejuvenation

20. Workers from the tree service company are pruning the trees today. This preventive measure _____ to avoid branches from falling and damaging cars during a typhoon.

    (A) takes   (B) is took   (C) is taking   (D) is being taken

II. Cloze: Choose the best answer for the following cloze passages.（Each 2%, Total 30%）

The human sense of smell is weak. That is well known, and is suspected by many anthropologists of being the result of a trade-off in the primate brain __21__ visual processing power. In the specific case of people, however, the relative weakness of smell compared with sight __22__ language, too. Humans have no __23__ putting names to colors but are __24__ bad at putting names to odors.

21. (A) deposing   (B) in favor   (C) in favor of   (D) opposing   (E) opposing of

22. (A) extend to   (B) extends to   (C) extent to   (D) extenting to   (E) extents to

23. (A) argument   (B) augment   (C) difficulty   (D) pulley   (E) sense

24. (A) famous   (B) famously   (C) notorious   (D) notoriously   (E) reputed

Eating less requires you to __25__ yourself to one square meal (defined as some grilled meat and two side portions of vegetables) a day. The other meals should be very __26__; a non-creamy soup, a salad or a bowl of non-sugary cereal. If you do end up __27__ a big meal or a treat, then the other meals should be skipped altogether.

25. (A) confine   (B) refer   (C) referral   (D) refine   (E) refrain
26. (A) comforting (B) delicious (C) nutritious (D) light   (E) soothing
27. (A) favor   (B) indulge   (C) indulgent (D) self-indulgence (E) splurging on

In the West, people trying to trace their lineage often __28__ websites that provide data from sources such as census records and church registers. Such sites enable users to __29__ their trees with others. But in China there is little in the way of official historical records that contain genealogical data and are __30__ to commercial data bases. Local gazettes often provided information about members of __31__ families, but were silent about the masses.

28. (A) advice   (B) advise   (C) advising   (D) consult   (E) result
29. (A) ink   (B) link   (C) ring   (D) rings   (E) rinse
30. (A) keen   (B) likely   (C) open   (D) prone   (E) resistant
31. (A)pipping   (B) pip-squeak   (C) prominent (D) strength   (E) strengthening

Henry Ford may have brought motoring to the masses in 1908 with the Model T, but his wife, Clara, __32__ to drive an electric car. Combustion engines were noisy, dirty, and in their early years required hand-cranking to start. Mrs. Ford's 1914 Detroit Electric, however, moved away instantly, was nearly silent and its speed was easy to control by pushing and __33__ on a wooden rod that selected the required amount of power from a __34__ of nickel-iron batteries. Her car could travel for about 80 miles on a single __35__ and exceed speeds of 20mph.

32. (A) prefer   (B) preferred   (C) preferred   (D) prefers   (E) prefering
33. (A) driving   (B) moving   (C) mowing   (D) peeling   (E) pulling
34. (A) bank   (B) magnet   (C) peel   (D) spread   (E) swathe
35. (A) charge   (B) count   (C) discharge (D) miscount (E) touch

III. Reading Comprehension（Each 2%, Total 30%）

From its inception, children's literature had in it an unusual educational function, which is to show horror and dire consequences in order to lead one into a certain pattern. *Yeh-Shen: A Cinderella Story from China,* for instance, relied on brutal intimidation to frighten children into docile behavior. In the story, Yeh-Shen was disfavored by her stepmother, and had to take care of all the house chores. At the

village where Yeh-Shen lived, a festival would be held in springtime. All young men and women would like to attend the festival since it provided them with a chance to meet other youths, and possibly further spouse. As the festival was approaching, Yeh-Shen longed to go. But, her stepmother forbade her to leave the house. Desperately, she asked help from the magic bones that her fish friend left to her before. Immediately, she was transformed into a beauty. That night at the festival, everyone marveled at her prettiness. However, in order to hide from her stepmother and stepsister, she ran away from the party. She therefore lost one of her slippers. She had to find her shoe and return to the bones; otherwise, the bones would no longer have any responses to her. When she went to take her lost shoe back, her beauty attracted the prince. Eventually, the prince asked for her hand in marriage. As she was rewarded for her good heart, hard work, and inner beauty, her stepmother and stepsister were crushed to death in a shower of stones because of their wickedness and malice. In short, through a combined representation of a good girl and a wicked stepsister, this tale promotes a pedagogy of fear and terror through images of death and disaster to pave the path for children to move into their expected roles.

36. What is the main purpose of this passage?
    (A) To describe the origin of a tale
    (B) To explain one educational function in stories for children
    (C) To interpret how the representation of reward can function in a tale
    (D) To argue how the representation of the means of punishment can function in a tale

37. According to the passage, which of the following statements is true?
    (A) Yeh-Shen has two stepsisters
    (B) Yeh-Shen's father is an official
    (C) Yeh-Shen is a Chinese daughter
    (D) Yeh-Shen is one of Cinderella's sisters-in-law

38. According to this passage, which of the following characteristics cannot be used to describe Yeh-Shen's personality?
    (A) docile
    (B) wicked
    (C) good heart
    (D) working hard

39. Why was Yeh-Shen eager to attend the spring festival?
    (A) To meet people and find a match
    (B) To show off her prettiness in public
    (C) To know why her stepmother and stepsister go there
    (D) To bring something back in order to feed her fish bone

40. According to this passage, which is the major moral of this tale, Yeh-Shen?

(A) When you encounter problems, don't be afraid to ask help

(B) Do your best to attend the party, and then chances will arrive

(C) The prince is always the best choice for one's future spouse

(D) The good will be rewarded, and the wicked will receive punishment

In recent years our society has become increasingly aware that when researchers study people, they may **inadvertently** harm them－not just physically but emotionally, by embarrassing them or violating their privacy. So every college or university now has a Human Subjects Committee that reviews all research directly or indirectly involving people, when done by students or professional researchers. Its aim is to make sure that researchers follow the rule that should govern research as it does medicine: Do no harm. So check with that committee if you use people as sources of data－by interviewing them, surveying them, or even just observing them. You don't need clearance if you informally talk with a few dorm mates for a paper in a first-year writing class (to be polite, you should still tell them what you intend to do with the information they give you). You will likely need clearance if you are a graduate student and want to do a survey on campus that collects personal data of any kind. But if you are an advanced researcher, you must without fail get clearance before you do any kind of research that involves people. Going through these steps may be annoying, but if you don't, you could harm those who help you in ways you don't anticipate and your institution could pay a price.

41. What is the topic of this passage?

(A) Research methods

(B) Research ethics

(C) Data collection procedure

(D) Different types of researchers

42. Which of the following is true according to the passage?

(A) There is a Human Subjects Committee in all levels of schools now

(B) The Human Subjects Committee does not review research conducted by students

(C) Research that involve people indirectly do not need clearance

(D) You might hurt your research subjects by simply observing them

43. Which of the following is **NOT** true according to the passage?

(A) The maxim of medicine is: do no harm to people

(B) The maxim of research is: do no harm to your subjects

(C) People were not aware that they might harm research subjects unconsciously

(D) Many researchers believe that the process of seeking clearance is too simplistic

44. Which of the following research requires clearance from the Human Subjects Committee?

(A) A case study on a patient

(B) A focus group interview

(C) An attitude survey

(D) All of the above

45. What does inadvertently mean?

(A) Unusually

(B) Surprisingly

(C) Unintentionally

(D) Unfortunately

I enjoy taking elective courses, but choosing them is often difficult. There are a lot of choices, but it is hard to know in advance which courses will be suitable and interesting. Last semester, I took History of Western Civilization, because I wanted to understand the historical periods that form the background for British and American literature. Also, I was interested in comparing European history with Chinese history, because I thought these two regions had each produced a rich culture, and I was curious about their similarities and differences. The course did give me a general idea of the major historical periods in the West from classical to modern times. We also discussed key issues like the roles of church and state, the rise of individualism, and the effects of technological advance on various societies. Although this was only a general background for British and American literature, it was very helpful. I understood the basic character of the different historical periods, so I could focus on the ways in which the literary works reflected that background. The professor made only a few rough comparisons between Europe and China, but that turned out to be enough for me. I don't think I could have absorbed much more, unless I also took further courses in Chinese history. In the end, I was quite satisfied with what I learned in this course, and would certainly recommend it to others.

46. According to the author of the passage, what makes choosing elective courses difficult?

(A) There are very few choices

(B) None of the courses seem interesting

(C) They are very hard courses to take

(D) It's hard to know which ones are interesting

47. Why did the author decide to take History of Western Civilization?

(A) The author majors in English literature

(B) The author majors in Chinese history

（背面尚有試題）

(C) The author wanted to know the historical background of Western literature

(D) The author knew that the course would be suitable and interesting

48. What was **<u>NOT</u>** covered in the History of Western Civilization?

    (A) A thorough comparisons between the European history and the Chinese history

    (B) A general historical background of the Western civilization from classical to modern times

    (C) How the characteristics of different historical periods were reflected in Western literary works

    (D) How technologies advances in the different societies in the Europe

49. What was the feeling of the author about the course, History of Western Civilization?

    (A) disappointed

    (B) satisfied

    (C) confused

    (D) overwhelmed

50. What would be the best title for the passage?

    (A) The Pros and Cons of Choosing History of Western Civilization as an Elective Course in College

    (B) How to choose an Elective Course in College and not to Regret

    (C) Why I took History of Western Civilization and what I learned from it

    (D) The Historical Periods that Form the Background for British and American Literature

國立臺中教育大學 107 學年度教師專業碩士學位學程招生考試

音樂專業試題

一、請於答案卷上寫出譜例所指示阿拉伯數字下方的十個和聲級數，每一個都完整寫出調性與級數。（數字 8 以四分音符長度，數字 10 以十六分音符，其餘皆以八分音符長度來判斷和聲）(25%)

二、請以宜蘭民歌〈丟丟銅仔〉為題(如譜例)，編寫一個適合國小高年級的音樂教學活動單元。活動學習內容必須呼應下列三項「十二年國教藝術領域課綱（草案）」音樂科之學習表現指標—①能探索並使用音樂元素，進行簡易創作，表達自我的思想與情感（音 1-Ⅲ-2）；②能探索樂曲創作背景與生活的關聯，並表達自我觀點，以體認音樂的藝術價值（音 2-Ⅲ-2）；③能與他人合作規劃音樂活動（音 3-Ⅲ-2）。(50％)

三、十九世紀後半，民族主義影響著不同國家作曲家之意識型態、美學思想與音樂構思。請分別以**北歐、東歐諸國和俄國**等音樂家及其作品為實例，說明在民族主義影響下，他們如何藉由作品之音樂特徵（諸如：旋律、節奏、和聲、曲式、織體與音響色彩等），傳達及展現他們的理念。(25％)

題號	作答區
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國立臺中教育大學 107 學年度教師專業碩士學位學程招生考試

健康與體育專業試題

一、選擇題（每題 2%，共 20%）

1. gluconeogenesis 的中文意思是？

(A)血糖

(B)糖質新生作用

(C)糖解作用

(D)肝糖合成

(E)以上皆非

2.乳酸閾值的英文是？

(A) lactate concentration

(B) lactate threshold

(C) lactate level

(D) lactate production

(E)以上皆非

3.抗氧化酶是身體清除自由基的重要酵素，以下何者不是人體內的抗氧化酶？

(A)超氧化岐化酶 SOD

(B)麩胱甘肽過氧化酶 GSH-Px

(C)羥甲基戊二酸單醯輔酶 A 還原酶 HMG CoA-reductase

(D)過氧化氫酶 catalase

(E)以上皆是

4.豬油的組成成份中以下列何者比例最高？

(A)非飽和脂肪酸

(B)單元不飽和脂肪酸

(C)多元不飽和脂肪酸

(D)飽和脂肪酸

(E)以上皆非

（背面尚有試題）

5.堅果的組成成份中以下列何者比例最高？

(A)非飽和脂肪酸

(B)單元不飽和脂肪酸

(C)多元不飽和脂肪酸

(D)飽和脂肪酸

(E)以上皆非

6.腳氣病是缺乏下列何種維生素？

(A) B1

(B) B2

(C) B3

(D) B6

(E) B12

7.溶血性貧血是缺乏下列何種維生素？

(A) B1

(B) B2

(C) E

(D) B6

(E) B12

8.小球性貧血是缺乏下列何種維生素？

(A) B1

(B) B2

(C) B3

(D) B6

(E) B12

9.惡性貧血是缺乏下列何種維生素？

(A) B1

(B) B2

(C) B3

(D) B6

(E) B12

10.地中海型貧血缺乏下列何種維生素？
   (A) E
   (B) B6
   (C) B9
   (D) B12
   (E)以上皆非

二、今測得一足球在空中飛行了 4 秒的時間，求此足球在飛行過程中離地面的最
    大高度。(20%)

三、回饋(feedback)的類型可分為內在回饋(intrinsic feedback)與外增回饋
    (augmented feedback)，請說明外增回饋的定義與功能。(20%)

四、教育部已於民國 103 年 11 月 28 日公布《十二年國民基本教育課程綱要總綱》，
    隨著總綱的修訂，健康與體育領域課程綱要亦有所變動，試問其與先前九年
    一貫健體課綱最大的改變有哪些？(20%)

五、體育署為瞭解及輔導奧亞運單項運動團體組織會務，以提升遴選、訓練與輔
    導績效，於 106 年辦理奧亞運單項運動團體訪評，請闡述「奧亞運單項運動
    團體訪評」應包含哪些評鑑項目及內容。(20%)

國立臺中教育大學 107 學年度教師專業碩士學位學程招生考試

資訊專業試題

一、選擇題（每題 2%，共 70%）

1.有關 Complex Instruction Set Computing (CISC)的說明，下列何者為真？
　　(A) CPU 中暫存器數量較少
　　(B)指令集數目較少
　　(C)指令長度固定
　　(D)有較少數的定址模式
　　(E)執行步驟較少

2.下列選項何者為 ALU 的主要功能？
　　(A)執行記憶體管理
　　(B)執行數值與邏輯運算
　　(C)執行中斷程式
　　(D)執行控制程序
　　(E)執行輸入、輸出程序

3.程式執行時會依下列何種暫存器的內容來依序執行？
　　(A)指令暫存器
　　(B)索引暫存器
　　(C)狀態暫存器
　　(D)工作暫存器
　　(E)程式計數器

4.一般稱為 N 位元 CPU 其 N 主要是根據下列何者之位元數？
　　(A)資料匯流排
　　(B)地址匯流排
　　(C)控制匯流排
　　(D)區域匯流排
　　(E)通用匯流排

（背面尚有試題）

5.下列何種儲存元件的存取速度最快？

(A) Flash

(B) SSD

(C) RAM

(D)暫存器

(E) ROM

6.ADC 屬於下列何種訊號的處理方式？

(A)數位訊號轉換串列訊號

(B)數位訊號轉換類比訊號

(C)類比訊號轉換數位訊號

(D)類比訊號轉換串列訊號

(E)數位訊號轉換數位脈衝寬度訊號

7.下列何者**非**串列傳輸介面？

(A) UART

(B) RS-232

(C) PWM

(D) RS-485

(E) SPI

8.下列關於網路交換器的敘述何者為**非**？

(A)各埠各自獨立

(B)擁有網路流量監控功能

(C)較網路集線器更能有效利用頻寬

(D)不容許不同速度網路共存

(E)每個 PORT 會自動記憶電腦的 MAC Address

9.下列何者為網路橋接器的主要功能？

(A)頻寬控制

(B)連接不同網路區段的設備

(C)用來決定封包傳遞路徑的設備

(D)過濾廣播封包

(E)分析封包內容

10.將中央處理器、記憶體以及週邊電路如數位電路、類比電路等，整合於一組晶片中，此晶片可稱之為？
 (A) GPU
 (B) DSP
 (C) FPGA
 (D) EMC
 (E) SoC

11.在 WINDOWS 環境下，哪一個指令可以顯示電腦的 IP 位址、子網遮罩與預設閘道器？
 (A) ipconfig
 (B) ifconfig
 (C) config
 (D) netstat

12.曼徹斯特(Manchester)編碼定義於 OSI 哪一層？
 (A)實體層
 (B)網路層
 (C)傳輸層
 (D)表達層

13.無線區域網路標準為 IEEE____？
 (A) 802.3
 (B) 802.5
 (C) 802.11
 (D) 802.16

14.無線區域網路的媒體存取方式為？
 (A) CSMA/CA
 (B) CSMA/CB
 (C) CSMA/CC
 (D) CSMA/CD

（背面尚有試題）

15.加密與解密是 OSI 的哪一層工作？
   (A)資料鏈結層
   (B)網路層
   (C)傳輸層
   (D)表達層

16.當 IP 位址不足時，為了應付企業內部的網路設定，可以使用以下哪一個網段
   做為私有 IP (Private IP)？
   (A) 168.168.0.0-168.168.255.255
   (B) 192.168.0.0-192.168.255.255
   (C) 192.192.0.0-192.192.255.255
   (D) 172.32.0.0-172.32.255.255

17. 假設瀏覽器可以連線至 http://192.83.167.90/，但卻不能連線至
    http://www.ntcu.edu.tw/，最有可能是因為何項設定**有誤**？
   (A) IP 位址
   (B)子網遮罩
   (C)預設閘道器
   (D) DNS 伺服器

18.「2002:c058:7231::c058:7231」可能是某臺電腦的？
   (A)網卡卡號
   (B) IPv4 位址
   (C) IPv6 位址
   (D)瀏覽網址

19.關於網路防火牆之敘述，以下何者**有誤**？
   (A)防火牆可防止所有病毒入侵
   (B)防火牆可阻隔外部網路進入內部系統
   (C)外部防火牆無法防止內賊對內部的侵害
   (D)防火牆可以管制封包流向

20.利用 TCP 建立連線之特性，進行阻斷服務攻擊的方式稱為？
   (A) UDP 攻擊
   (B) ICMP 攻擊
   (C) SYN Flood 攻擊

(D) DNS Recursion 攻擊

21. 物件導向程式的特性中，在一個類別的方法宣告時，若兩個或是兩個以上的方法有相同的名字，但有不同的參數型態及數量，我們稱之為？
(A) Overwriting
(B) Overriding
(C) Overlooking
(D) Overloading
(E) Overtaking

22. 在 C 語言程式中執行程式碼 26 ％ (36 / 5)，其運算結果為何？
(A) 1
(B) 2
(C) 3
(D) 5
(E) 不正確的敘述，無法算出結果

23. 在 C 語言程式中，假設 x、y、z 皆為整數變數，初始值皆為 0。
若進行下列運算
x++;
y=++x;
z+=y;
之運算結果 x、y、z 的值分別為何？
(A) x=0，y=0，z=0
(B) x=1，y=1，z=1
(C) x=2，y=2，z=2
(D) x=1，y=2，z=3
(E) 以上皆非

24. 在 C 語言程式中，假設 i、j、sum 皆為整數變數，初始值皆為 0。
若進行下列運算
int i, j,sum=0;
for(j=1;j<=3;j++)
        for(i=1;i<=5;i++)
            sum=i+sum;
則運算結果 sum 的值為何？

（背面尚有試題）

(A) 45

(B) 30

(C) 15

(D) 5

(E)以上皆非

25.在 C 語言程式中，進行下列運算

```
int a[4][4]={1,2,3,4,5,6,7,8,9,0,1,2,5,6,7,8};
int x=0, y=0, z=0;
while (x<4){
        for(y=0;y<=x;y++)
             z=z+a[x][y];
        x++;
        }
```

之結果 z 的值為多少？

(A) 74

(B) 48

(C) 45

(D) 0

(E)以上皆非

26.在 C 語言程式如下列所示

```
//start of program
#include<stdio.h>
long myFoo(int);
int main()
{
     int n;
     long fact;
     printf("Enter an integer:");
     scanf("%d",&n);
     fact= myFoo(n);
     printf("%ld",fact);
     return 0;
}
 long myFoo(int n)
```

```
{
    int f;
    if(n==0)
        return 0;
    else if(n==1)
        return 1;
    else
        f=myFoo(n-1)+myFoo(n-2);
    return f;
}
//end of program
```

當輸入 6 時，執行程式輸出結果為何？

(A) 120

(B) 61

(C) 8

(D) 5

(E)以上皆非

27.學校教務處建立一個訊息公告網站，安裝了 Linux、Apache web server、FTP server、Telnet server、MySQL server，及使用了 PHP 技術來架設網站系統，請問其中使用之 MySQL server 主要是提供何種功能？

(A)記憶體管理

(B)資料庫管理

(C)遠端檔案傳輸

(D)作業系統管理

(E)以上皆非

28.以下哪個機制常用來讓使用者可以安全地登入 Linux/Unix 系統，而不怕中途傳輸的資料被竊聽？

(A) TELNET

(B) XML

(C) CCS

(D) SSH

(E) PPPoE

29.請問在網路上寄送電子郵件(E-mail)時，所使用的傳輸協定為何？

（背面尚有試題）

(A) POP3

(B) SSH

(C) SNMP

(D) ICMP

(E) SMTP

30.在邏輯電路中，哪一個電子閘門(gate)可以用來實作出其他電子閘門的功能？

(A) AND gate

(B) OR gate

(C) NAND gate

(D) NOT gate

(E)不存在這種東西

31.假設在 CPU 中有三個元件，分別負責指令的擷取、解碼、執行／存回，且所需的時間分別為 7ns、5ns、12ns，若以管線(pipeline)的技術來執行 50 個指令，那麼所需的時間為何？

(A) 1200ns

(B) 624ns

(C) 1217ns

(D) 750ns

(E) 260ns

32.以下何者為容錯碼？

(A) CRC

(B) DES

(C) CIA

(D) RSA

(E) BOT

33.SPAM 電子郵件指的是？

(A) Simultaneously Posted Advertising Message

(B) Simple Posted Advertising Mail

(C) Sending Posted Advertising Mail

(D) Sending People Advanced Message

(E)以上皆非

34.以下何者為堆疊(Stack)時會使用到的操作？
　　(A) Push
　　(B) Pop
　　(C) isFull
　　(D) isEmpty
　　(E)以上皆是

35.網路傳輸時，兩端節點在同一時間皆可以進行傳輸和接收資料的方式稱之為？
　　(A)全雙工(full-duplex)
　　(B)倍雙工(double-duplex)
　　(C)半雙工(half-duplex)
　　(D)單工式(simplex)
　　(E)以上皆非

二、簡答題（每題 5%，共 30%）
1.一個數學算式的前序(prefix notation)為 (/ - x y + a b)，請問它的中序表示法為何？

2.請描述快速排序法(Quick Sort)的演算法，並評估其時間複雜度(Time Complexity)。

3.電腦內存放資料，一般整數長度為 16 位元，若此 16 位元不存放負整數，則請問可以存放的數字範圍為何？

4.請舉例說明交換律與分配律。

5.請說明撰寫程式時副程式(subroutine)與函數(function)的功用為何？

6. 11001 之 2's 補數為何？

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數學專業試題

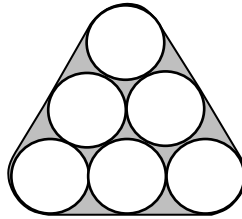※請於答案卷上作答區中作答，否則不予計分；本次考試得用**鉛筆、藍色或黑色原子筆**作答。

一、填充題（每題 4%，共 80%）

1. 設 z 為一複數，且 $\frac{z-2}{z+2} = i$（其中 $i = \sqrt{-1}$），則 $|z| = $ _____ 。

2. 若 $\sum_{i=1}^{10}(a_i + 2i) = 240$，則 $\sum_{i=1}^{10} a_i = $ _____ 。

3. 坐標平面上有兩條平行線，它們的 x 軸截距相差 20，y 軸截距相差 15，則這兩條平行線的距離為 _____ 。

4. 若 $f(x) = x^3 - 2x^2 - x + 5$，且多項式 $g(x) = f(f(x))$，則 $g(x)$ 除以 $x - 2$ 所得的餘式為 _____ 。

5. 6 個直徑為 4 公分的圓以外切的方式排列如下圖所示，則灰色部分面積為 _____ 平方公分。

6. 方程式 $27(9^x + 9^{-x}) - 336(3^x + 3^{-x}) + 847 = 0$ 中所有解的平方和為 _____ 。

7. 若 $x \in (-1, 1)$，則 $f(x) = \frac{10^x - 1}{10^x + 1}$ 之反函數為 _____ 。

（背面尚有試題）

8. 若 $\log_{(x+2)}(-x^2 + x + 12)$ 有意義，則 x 的範圍為＿＿＿＿。

9. 擲三顆公正的骰子一次，在至少出現一顆為 4 點的條件下，其點數和為偶數的機率為 $\frac{a}{b}$，則 $a + b =$ ＿＿＿＿。

10. 若 a 與 b 皆為實數且滿足 $\sin a + \sin b = \frac{\sqrt{2}}{2}$ 和 $\cos a + \cos b = \frac{\sqrt{6}}{2}$，則 $\sin(a + b) =$ ＿＿＿＿。

11. 若 $O(0,0)$、$A(2,3)$、$B(5,5)$、$C(1,1)$ 為坐標平面上的四個點，$P(x,y)$ 為 ΔABC 所在平面上的動點且 $x \geq 0,\ y \geq 0$。若 $90° \leq \angle BAP \leq 180°$ 且 $0° \leq \angle BCP \leq 90°$，則 $\overline{OP}$ 的最小值為＿＿＿＿。

12. 拋物線 $y = -x^2 + 4x - 3$ 的圖形與 x 軸的交點為 A 與 B，而以 A 與 B 為切點所做成拋物線的切線為 L_1 與 L_2，則 L_1 和 L_2 與拋物線圍成的封閉區域面積為＿＿＿＿。

13. 若角 θ 的終邊在直線 $y = 4x$ 上，則 $\dfrac{2\sin\theta - \cos\theta}{2\sin\theta + \cos\theta} =$ ＿＿＿＿。

14. 若 x、y、z 為實數且 $x + y + z = 5$，則 $x^2 + y^2 + z^2 + 2x - 4y$ 的最小值為＿＿＿＿。

15. 一平面 E 過點 $A(1,2,3)$ 且分別與二平面 $E_1 : x + 2y - z + 1 = 0$、$E_2 : x - y + z - 1 = 0$ 垂直，則此平面 E 的方程式為＿＿＿＿。

16. 若 $A(1,-4)$、$B(5,2)$，C 點在曲線 $y = x^2$ 上，欲使 ΔABC 的面積最小，則 C 點坐標為_____。

17. 若 $a > 0$、$b > 0$、$c > 0$，則 $\frac{b+c}{a} + \frac{c+a}{b} + \frac{a+b}{c}$ 之最小值為_____。

18. 若多項式 $f(x)$ 除以 $2x + 1$ 的餘式為 8，則 $x^3 f(x)$ 除以 $x + \frac{1}{2}$ 的餘式為_____。

19. 不等式 $x^8 - 1 < 0$ 的解為_____。

20. $\lim\limits_{x \to \infty}\left(4x - \sqrt{16x^2 - x}\right) = $_____。

二、應用題（每題 10%，共 20%）

1. 假設一個國家有 1%的人會患上某種疾病，其中有 98%的患者經由醫學檢測可正確檢測出陽性結果，而有 3%的非患者會誤檢出陽性結果。若隨機從該國家挑選一人進行檢測，其檢測結果呈現陽性，則此人確實患病的機率是多少？（答案請四捨五入取至小數第二位）

2. 假設甲、乙、丙三鎮兩兩之間距離皆為 20 公里，有兩條筆直的公路相交於丁鎮，其中一條公路通過甲、乙兩鎮，而另一條公路通過丙鎮。若兩公路的夾角為 45°，求丙、丁兩鎮間的距離。