

高雄醫學大學九十四學年度學士後醫學系招生考試試題

科目：國文

考試時間：80 分鐘

說明：一、選擇題用 2B 鉛筆在「答案卡」上作答，修正時應以橡皮擦擦拭，切勿使用修正液（帶），未遵照正確作答方法而致電腦無法判讀者，考生自行負責。
二、非選擇題限黑色或藍色墨水之鋼筆、原子筆或鉛筆，在「答案卷」上作答。
三、試題及答案卡必須繳回，不得攜出試場。

一、綜合測驗：（單選題，每題 2 分，共 60 分）

請選出一個最適當的選項，標示在答案卡上。答錯一題倒扣 0.5 分，倒扣至本大題 0 分為止；未作答者，不給分亦不扣分。

- 下列各組字音，寫成國字後，何者兩兩相同？
 - 史上暢銷鉅片星際大戰「尸又V」部曲是由美國「尸又V」屈一指的大導演喬治盧卡斯執導的
 - 五月天在人潮洶「口厶V」的西門町舉辦簽唱會，吸引了大批歌迷蜂「口厶V」而至
 - 媽媽在我遇到挫折時不斷地鼓「力一、」我，希望我能再接再「力一、」
 - 最令人「了么V」怒的是他說話常常不經大「了么V」
 - 星期日我約「夕厶、」友，去逛大「夕厶、」灣
- 下列文句，何者沒有錯別字？
 - 虎父無犬子，老張這幾個兒子都是克劭箕裘的資訊業人才
 - 在五百名應徵者中，小李竟能脫穎而出，實在難得
 - 王老先生經常運動，現在雖已七十多歲了，依然身體強健，精神矍鑠
 - 做人要能堅守原則，萬不可因為一時的困頓，挺而走險，導致身敗名裂的下場
 - 他沒錢，卻喜歡打種臉充胖子
- 下列文句中，成語使用完全正確的選項是：
 - 老林心無主見，開會時總是「八面玲瓏」，當個應聲蟲
 - 你先把自己的工作做好，他的工作他會自行處理，你不必「越俎代庖」
 - 這根本就是子虛烏有的事，結果「風行草偃」，連主任都信以為真
 - 以你微薄的力量，想要駁倒他，就如同「蜀犬吠日」一般，起不了作用
 - 班上舉辦郊遊，時間到了但是來的人，依然「參差不齊」
- 下列成語的解釋，何者錯誤？
 - 「滄海一粟」、「蜉蝣天地」與「白駒過隙」皆謂人生之渺小
 - 「鳴鼓而攻」與「口誅筆伐」均指揭發他人罪狀，而加以聲討譴責
 - 「蒸蒸日上」與「欣欣向榮」皆謂事物蓬勃發展，天天進步
 - 「松柏後凋」、「板蕩忠臣」與「寒花晚節」皆可用以形容君子處亂世而不改其操守
 - 「洞若觀火」與「一目了然」皆在比喻觀察事物十分清楚
- 古代文句常因時空轉變而產生新意。有關下列文句的敘述，錯誤的選項是：
 - 現代常以「醉翁之意不在酒」喻人另有企圖，但歐陽脩〈醉翁亭記〉原謂所醉者乃在山水之間
 - 現代常以「君子遠庖廚」表示男人不必下廚，但《孟子·梁惠王》原是指君子不忍聞見殺生
 - 現代常以「割雞焉用牛刀」喻人大材小用，但《論語·陽貨》中，孔子原是以此告誡弟子無須從政
 - 現代常以「青出於藍」喻學生的成就高於老師，但《荀子·勸學》原是指藉此說明學習有助於能力或層次的提升
 - 現代常以「牛山濯濯」喻人禿頂無髮，但《孟子·告子》原是以牛山無木係因於人為砍伐，比喻人之為惡乃放失良心所致
- 為政者當「以身作則」是孔子政治思想的重要觀點。下列敘述不符合此一觀點的選項是：
 - 君子學道則愛人；小人學道則易使也
 - 政者，正也。子帥以正，孰敢不正

- (C)其身正，不令而行；其身不正，雖令不從
 (D)上好禮，則民莫敢不敬；上好義，則民莫敢不服；上好信，則民莫敢不用情
 (E)子為政，焉用殺？子欲善，而民善矣！君子之德，風；小人之德，草；草上之風必偃
7. 下列關於《禮記·學記》篇之敘述，何者錯誤？
 (A)為儒家教育理論之大要，其中對教學之基本理論、教學之功用、方法、目的及其效果，皆有論及
 (B)〈學記〉中特別重視「豫」(預防法)、「時」(及時法)、「孫」(順序法)及「摩」(觀摩法)此四種教育方法
 (C)〈學記〉中強調治人者須受學方能移風易俗
 (D)以「叩之以小者則小鳴，叩之以大者則大鳴」來說明因材施教
 (E)「故君子之於學也，藏焉，脩焉，息焉，游焉」是說明學習者常犯之錯誤
8. 孟子曰：「君子有三樂。」(《孟子·盡心上》)請問下列何者屬於三樂之一？
 (A)廣土眾民，王天下而居中 (B)登東皋以舒嘯，臨清流而賦詩
 (C)浴於沂，風於舞雩，詠而歸 (D)以文會友，以友輔仁
 (E)父母俱存，兄弟無故
9. 「人世間的概念、價值都是相對的」，這是老子哲學的重要思想，下列何者有此意涵？
 (A)天下皆知美之為美，斯惡已 (B)處無為之事，行不言之教
 (C)生而不有，為而不恃 (D)雖有舟輿，無所乘之
 (E)甘其食、美其服、安其居、樂其俗
10. 藉由歷史人事或遺蹟而產生盛衰興亡之悲感，常是詠史詩、懷古詩所要反映之主題。下列詩句，何者並未產生歷史興衰的情懷？
 (A)吳宮花草埋幽徑，晉代衣冠成古邱
 (B)江雨霏霏江草齊，六朝如夢鳥空啼
 (C)舊時王謝堂前燕，飛入尋常百姓家
 (D)王師北定中原日，家祭無忘告乃翁
 (E)千尋鐵鎖沈江底，一片降幡出石頭
11. 蘇軾自釋褐之後，雖終身浮沉於官場之中，然其詞作中時常可見歸隱的想法，請問下列何者未寄寓其歸隱之念？
 (A)用舍由時，行藏在我，袖手何妨閒處看(《沁園春》)
 (B)都是斜川當日境，吾老矣，寄餘齡(《江城子》)
 (C)仍傳語，江南父老，時與曬漁蓑(《滿庭芳》)
 (D)作箇歸期天已許，春衫猶是小蠻針線，曾溼西湖雨(《青玉案》)
 (E)我欲乘風歸去，惟恐瓊樓玉宇，高處不勝寒(《水調歌頭》)。
12. 「我走在黑暗的小巷/沒有人看我一眼
 我蹲在閃爍的陽光下/沒有人看我一眼
 我躺在公園的椅子上/沒有人看我一眼
 我暴斃在一家店鋪的門口/卻吸引成群看熱鬧的人」(鄭炯明《乞丐》)
 閱讀本詩後請選出正確的敘述
 (A)由走、蹲、躺、暴斃的動作可以看出乞丐生命沈寂的過程
 (B)本詩以第一人稱「我」的觀點敘述，是作者生活的自況
 (C)全詩分四節，前三節寫乞丐的「生」，末節寫乞丐的「病」
 (D)全詩以「乞丐」、「我」之行為相互對照，形成強烈對比
 (E)作者在本詩中是「看熱鬧的人」之一
13. 關於鄭愁予《錯誤》一詩的讀解，下列敘述何者有誤？
 (A)全詩重點在描寫女子等待歸人的心情
 (B)詩中以「柳絮不飛」、「寂寞的城」象徵女子的孤寂
 (C)詩中以「蓮花的開落」寫女子希望的燃起和落空
 (D)詩中以「東風」象徵愛情的失落
 (E)「達達」是用來摹寫馬蹄的聲音

14. 「晨霧初散/
 (甲)而梵唱已冷/
 (乙)對岸的觀音/
 (丙)寶相未露/
 (丁)我來訪這漫漫的一片/
 山門外/殘留我昨夜/未竟的夢」(辛鬱〈關渡渡口〉)，這首詩，依照詩意，正確的順序應該是
 (A) (甲)(乙)(丙)(丁) (B) (乙)(丙)(丁)(甲)
 (C) (乙)(丁)(甲)(丙) (D) (丁)(乙)(丙)(甲)
 (E) (丁)(丙)(甲)(乙)
15. 「野外罕人事，窮巷寡輪鞅。白日掩荆扉，虛室絕塵想。時復墟里中，披草共來往。相見無雜言，但道桑麻長。桑麻日已長，我土日已廣。常恐霜霰至，零落依草莽。」上列作品與作者的生平經歷，人生態度相應，且足以看出作者之文學風格，試判斷它應該是下列哪一位作家之作品？
 (A)阮籍 (B)陶淵明 (C)李白 (D)杜甫 (E)蘇軾
16. 「我的未來不再酣睡了/好像有什麼故事要突圍而出/開始和結局已發生孤注一擲的巷戰/一個身影失足/誤闖冥想的雷區」(焦桐〈重考生〉)請問這一首詩，使用最多的是哪一種修辭法？
 (A)誇飾 (B)轉化 (C)轉品 (D)譬喻 (E)摹寫
17. 下列何者未使用譬喻修辭法？
 (A)舊恨春江流不盡，新恨雲山千疊。(辛棄疾〈念奴嬌〉)
 (B)問君能有幾多愁，恰似一江春水向東流。(李煜〈虞美人〉)
 (C)飛流直下三千尺，疑是銀河落九天。(李白〈望廬山瀑布〉)
 (D)那河畔的金柳，是夕陽中的新娘。(徐志摩〈再別康橋〉)
 (E)西裝是有一定的標準的，譬如：作褲的材料要厚。(梁實秋《雅舍小品·衣裳》)
18. 「象徵」，即使用具體的意象來表達抽象概念與情感的一種修辭手法。如以「竹子」象徵剛毅堅貞之人格；以「十字架」象徵基督精神。下列關於「象徵」的說明，何者錯誤？
 (A)子曰：「鳳鳥不至，河不出圖，吾已矣夫！」句中「鳳鳥」、「河圖」為聖王在位，天下太平的祥瑞象徵
 (B)梵谷畫作「麥田群鴉」，畫中大片麥田空曠無物，只有黑色烏鴉低掠過藍得發黑的駭人天穹，正象徵梵谷江郎才盡的痛苦掙扎與空虛絕望
 (C)「慈母手中線，遊子身上衣，臨行密密縫，意恐遲遲歸。誰言寸草心，報得三春暉。」詩中以「寸草心」象徵恩澤廣深的母愛；以「三春暉」象徵子女細微的孝心
 (D)「查某囡仔是油麻菜籽命，落到哪裡就長到哪裡。」句中以「油麻菜籽」來象徵女子的命運，道出傳統社會中，女子既卑微又富有韌性的強烈生命力
 (E)「松下問童子，言師採藥去。只在此山中，雲深不知處。」句中以「松」來象徵隱士的高潔
19. 下列何者不屬於對偶句？
 (A)雁字回時，月滿西樓 (B)才下眉頭，卻上心頭
 (C)草木為之含悲，風雲因而變色 (D)鴻雁不堪愁裡聽，雲山況是客中過
 (E)苔痕上階綠，草色入簾青
20. 下列典籍的敘述，何者不正確？
 (A)《詩經》內容，包括民間歌謠、士大夫作品、祭祀時頌讚的樂歌
 (B)《呂氏春秋》在《漢書·藝文志》列為雜家
 (C)《小戴禮記》為我國人格教育的重要典籍
 (D)《天工開物》為我國明代的農工科學名著
 (E)《文心雕龍》開啟我國文學批評的先河

21. 下列有關詩歌的認識，以下敘述何者錯誤？
- (A)近體詩分絕句、律詩、排律，均有五言、七言之分
(B)《詩經》是北方文學的代表，為我國最早的詩歌總集
(C)古詩十九首的風格質樸自然，並對後世五言詩的發展影響很大
(D)《楚辭》重視寫實，句法長短參差不齊
(E)樂府詩屬於古詩
22. 下列關於中國古代神話的敘述，何者有誤？
- (A)神話是人民群眾集體的創作，是反映初民對世界起源、自然現象和社會生活的原始理解
(B)神話往往表現古代人民對自然力量的抗爭和對理想的追求
(C)晉朝干寶的《搜神記》，所記以遠古神話傳說為主，為保存中國古代神話最多之書
(D)「精衛填海」、「愚公移山」、「夸父追日」屬於同型的神話，都是反映古代人民同自然鬥爭的大無畏氣魄和百折不撓的堅強意志
(E)神話的產生乃是由於先民對世界的起源、自然現象變化的認知不足，所以就借由幻想將自然擬人化
23. 關於先秦諸子的敘述，下列何者有誤？
- (A)最先談論先秦學派者是莊子的〈天下〉篇
(B)公孫龍子善為堅白之辯，其名家之學是中國最早的理則學
(C)荀子之學，源出孔子，其學以禮為宗，主張人性本惡
(D)《鬼谷子》一書，《漢書·藝文志》將之列為陰陽家
(E)老子之學，道法自然，主張無為而治
24. 下列有關中國史書的敘述，何者不正確？
- (A)《資治通鑑》、《通鑑紀事本末》都屬「編年體」
(B)正史為「紀傳體」，此體始於《史記》
(C)《史記》本名「太史公書」，魏晉以後專稱「太史公書」為《史記》
(D)《史記》為通史，《漢書》為斷代史
(E)杜佑《通典》、鄭樵《通志》多記載文物制度
25. 下列文句，並未述及事件前因後果的選項是：
- (A)三折肱而成良醫
(B)君子多欲，則貪慕富貴，枉道速禍
(C)親賢臣，遠小人，此先漢所以興隆也
(D)居廟堂之高，則憂其民；處江湖之遠，則憂其君
(E)昔者先王知兵之不可去也，是故天下雖平，不敢忘戰
26. 下列敘述，均與古人的時間觀念有關，正確者為：
- (A)「三更半夜」之「三更」即子時，指凌晨一時至凌晨三時
(B)一旬為十天，一稔為一年，一紀為十二年，一世為三十年，一甲子為六十年
(C)若唐玄宗開元十年，歲次壬戌；則開元十五年，歲次應在戊卯
(D)臘月是農曆十二月，暮秋是農曆八月；而台灣五、六月間是梅雨季節，乃因此時梅子黃熟之故而得名
(E)「望」是指農曆每月十五日，「朔」是指農曆每月三十日
27. 余光中〈大江東去〉：「大江東去，浪濤騰躍成千古／太陽昇火，月亮沈珠／哪一波是捉月人？哪一波是溺水的大夫？／赤壁下，人弔髯蘇猶似髯蘇在弔古／聽，魚龍東去，擾擾多少水族」，其中提到的人物有：
- (A)嫦娥／屈原／曹操
(B)李白／蘇軾／項羽
(C)曹操／杜甫／蘇軾
(D)李白／屈原／蘇軾
(E)李白／項羽／屈原
28. 下列常用題辭，何者為是？
- (A)「母儀足式」、「福壽全歸」：祝賀壽星
(B)「宜其室家」、「妙選東床」：賀人喬遷
(C)「慶叶弄璋」、「良禽擇木」：賀人新婚
(D)「近悅遠來」、「賓至如歸」：賀旅社開張
(E)「妙手回春」、「時雨春風」：賀醫院開張

29. 下列敘述錯誤的選項是：

- (A)「趨庭之教」是指父親對子女的教誨 (B)「椿萱」為父母的代稱
(C)稱人兄弟為「賢喬梓」 (D)妻之姊夫稱「襟兄」
(E)部屬對長官，通常稱「鈞長」或「鈞座」，自稱「職」

30. 下列關於時令類之對聯，配對有誤的選項是：

- (A)話舊他鄉曾作客／登高佳節倍思親——重陽節
(B)清風明月本無價／近水遙山皆有情——清明節
(C)艾葉如旗招百福／菖蒲似劍斬千妖——端午節
(D)未到中秋開月桂／且看嘉會集盂蘭——元宵節
(E)占得清秋一半好／算來明月十分圓——中秋節

二、作文:40分

說明：1、請抄題。

2、字數不得少於500字。

3、須用新式標點符號。

題目：當我站在台灣地圖之前

高雄醫學大學九十四學年度學士後醫學系招生考試試題

科目:英文

考試時間: 80 分鐘

說明: 一、選擇題用 2B 鉛筆在「答案卡」上作答, 修正時應以橡皮擦擦拭, 切勿使用修正液(帶), 未遵照正確作答方法而致電腦無法判讀者, 考生自行負責。
二、非選擇題限黑色或藍色墨水之鋼筆、原子筆或鉛筆, 在「答案卷」上作答。
三、試題及答案卡必須繳回, 不得攜出試場。

I. Grammar and Structure: Choose the best answer. 5 points.

【單選題】每題 1 分, 共 5 題, 答錯一題倒扣 0.25 分, 倒扣至本大題零分為止, 未作答, 不給分不扣分。

1. If the nurse had been more cautious, the innocent babies _____.
(A) should not be killed (B) would not be killed
(C) should have been killed (D) wouldn't have been killed
(E) could have to be killed
2. The phone _____ constantly since Jack announced his candidacy for president this morning.
(A) has been ringing (B) rang (C) had been ringing (D) had rung (E) is ringing
3. While I _____ TV last night, a mouse ran across the floor.
(A) watch (B) watched (C) have been watching (D) am watching (E) was watching
4. Four miles off the southeastern coast of Massachusetts _____, a popular summer resort.
(A) lies the island of Martha's Vineyard (B) the island of Martha's Vineyard lies there
(C) does lie the island of Martha's Vineyard (D) Where the island of Martha's Vineyard lies
(E) Which Martha's Vineyard lies is
5. Bacteria may be round, _____, or spiral.
(A) rod shapes (B) in the shape of rods (C) like a rod's shape (D) rod-shaped (E) shaping

II. Vocabulary and Usage: Choose the best answer to complete the sentence. 15 points.

【單選題】每題 1.5 分, 共 10 題, 答錯一題倒扣 0.375 分, 倒扣至本大題零分為止, 未作答, 不給分不扣分。

6. George is _____ Lisa.
(A) marry with (B) marry to (C) married with (D) married to (E) marry
7. Although flies live longest in cool temperatures, they breed _____ when temperatures are warm, food is abundant, and humidity is moderate.
(A) proficiently (B) profitably (C) prolifically (D) propitiously (E) professionally
8. The weather was so damp that moisture seemed to _____ everything: curtains hung limp, towels wouldn't dry and windows were fogged over.
(A) perpetuate (B) permeate (C) proliferate (D) perforate (E) pressure
9. Not until I _____ in bed did I think of the invitation.
(A) lay (B) lied (C) had lie (D) was lying (E) had laid
10. When he's caught in a tight spot, Peter has an unfortunate _____ to lie. As a result, few people trust him anymore.
(A) contingency (B) clandestine (C) attrition (D) utopia (E) propensity
11. The math teacher _____ his explanation of the problem several times because his students were having difficulty understanding it.
(A) exonerated (B) depreciated (C) reiterated (D) circumvented (E) ostracized

12. Cheating on exams has become very _____ these days.
 (A) flourishing (B) irresistible (C) perplexing (D) rampant (E) redundant
13. He's got a _____ mind and is therefore open to different ideas.
 (A) liberal (B) lunatic (C) morbid (D) potent (E) closed
14. In recent years, the government has imposed pollution controls on automobile manufacturers. Both domestic and imported automobiles must _____ anti-pollution devices.
 (A) quip with (B) be equipped with (C) equip by (D) be quipped by (E) be equipped to
15. We can finally afford a new car _____ I have gotten the raise I have been waiting for.
 (A) so that (B) consequently (C) now that (D) so (E) so as

III. Close: Please choose the best answer to fill in the passage. 15 points

【單選題】每題 1.5 分，共 10 題，答錯一題倒扣 0.375 分，倒扣至本大題零分為止，未作答，不給分不扣分

Books are to mankind what memory is to the individual. They 16 the history of our race, the discoveries we have made, and the accumulated knowledge and experience of many different time periods. They picture for us the wonder and beauty of nature and explain to us its many changes. Books teach us how to face and overcome difficult challenges, and 17 us when we are grieving. Books can change hours of boredom 18 moments of joy. They fill our minds with ideas and even a few happy thoughts. Like a good memory, a good book is a 19 treasure. If you find yourself bored by a book that educated people regard as important, be honest with yourself. The difficulty is probably not in the book but in you. Often a book, which now seems boring or difficult, will be easy to grasp and fascinating to read when you are more intellectually mature.

16. (A) contain (B) detain (C) retain (D) maintain (E) obtain
 17. (A) upset (B) confront (C) comfort (D) annoy (E) tell
 18. (A) into (B) with (C) of (D) for (E) by
 19. (A) reckless (B) pointless (C) valueless (D) priceless (E) worthless

Some people have worried that an increased use of iris-scanning will lead to a dangerous loss of 20. If iris scans were required for driver's licenses, for example, government could instantly 21 nearly every adult with almost 100% accuracy. By 22 iris-scan cameras in public places, government could track a private citizen all day long without the person's 23. This would be a great advantage to the police; 24, it could also give corrupt officials a new way to control their opponents. The military's development of spy bugs suggests that government with iris-scanner could even 25 private homes.

20. (A) propriety (B) privacy (C) property (D) proficiency (E) procedure
 21. (A) identify (B) indent (C) refute (D) investigate (E) demonstrate
 22. (A) amounting (B) claiming (C) mounting (D) transmitting (E) adjusting
 23. (A) allowance (B) admittance (C) insistence (D) refusal (E) knowledge
 24. (A) so (B) yet (C) thus (D) similarly (E) nevertheless
 25. (A) invade (B) envision (C) inquire (D) enforce (E) interrupt

IV. Reading comprehension: Choose the best answer. 45 points.

【單選題】每題 1.5 分，共 30 題，答錯一題倒扣 0.375 分，倒扣至本大題零分為止，未作答，不給分不扣分

The first eco-tours were in Africa and Latin America. These eco-tourists traveled to interesting places and studied the environment. Soon eco-tourists began to organize groups to help in the communities. These groups worked hard; for example, a group of city office workers "got their hands dirty". They built a new trail in an area where rain was eroding the soil on the side of the mountain. They carried stones to strengthen the steep hill and to make steps in some areas. They planted native bushes to hold back the mud in the rainy season. They were ideal eco-tourists.

Nowadays eco-tourists can choose from several kinds of tours. They can be "rugged" eco-tourists. Rugged tourists make plans and arrangements themselves. They do not expect comforts like hot water and soft beds. They travel alone or in small

groups by foot, train and bus. Other tourists want adventure but they also like comfort. These tourists are more likely to travel on organized trips. These trips may include hiking in the mountains, watching birds or whales, digging with archaeologists, sailing on the ocean, or rafting on a wild river. Other eco-tours promote cultural understanding and friendship. Some travelers live with people of the community.

26. They were ideal eco-tourists because _____.
- (A) these visitors worked side by side with the local people
 - (B) these visitors did not litter
 - (C) these visitors changed the environment
 - (D) these visitors cared for the natural state of the places they had visited
 - (E) these visitors brought money along
27. Which of the following statements defines “eroding” in the above excerpt?
- (A) The rain was running down along the soil.
 - (B) The rain was falling onto the soil.
 - (C) The rain was washing away the soil.
 - (D) The rain was severely destroying the soil.
 - (E) The rain was making the soil get rotten.
28. The main idea of this excerpt could be _____.
- (A) The eco-tourists looked for ways to conserve the environment
 - (B) The first eco-tours were to Africa and Latin America
 - (C) The eco-tourists got their hands dirty in order to get closer to nature
 - (D) The eco-tourists brought about prosperity
 - (E) All of the above
29. What does “rugged” mean?
- (A) primitive
 - (B) budget limited
 - (C) organized and packaged
 - (D) strong
 - (E) original
30. Which sentence below would be a good conclusion?
- (A) A nature tour is a good way to learn about a different culture.
 - (B) As long as the travel is friendly to the environment, it can promote peace and understanding in the world.
 - (C) Eco-tourists have lots of different choices for their trips.
 - (D) The choice of one trip may contradict other choices of trips.
 - (E) A trip may be harmful to the environment.

Decision-making is not unlike poker—it often matters not only what you think, but also what others think you think and what you think they think you think. Interestingly poker, that most subjective of games, has often been of considerable interest to people who are, by any standards, good thinkers.

The great mathematician John von Neumann was, among his many other accomplishments, one of the originators of games theory. In particular, he showed that all games fall into one of two classes: there are what he called “games of perfect information”, games like chess which are meant to involve no element of concealment, bluff or luck—games where the players can, in principle, discover the best move by the application of pure logic to the available data. Then there are “games of imperfect information”, like poker, in which it is impossible to know, in advance, that one course of action is better than another.

One of the most dangerous illusions about business (or indeed, any activity involving human beings and human institutions) is that it can be treated as a game of perfect information. Quite the reverse, business, politics, life itself are games which we must normally play with very imperfect information. Many a business decision involves odds that would make a professional poker player shudder, for the number and extent of the unknown and unknowable factors are themselves often incalculable. But, as I have wished to point out, few organizations find it comfortable or congenial to admit that they are gambling, and many still prefer to delude themselves that they are playing a sober, responsible game of chess and are not encouraged, as is often the case, in a fling at the poker table.

31. John von Neumann invented _____.
- (A) a chess game (B) a poker game (C) a logic theory (D) a market theory (E) a games theory
32. A move in chess could be predicted by _____.
- (A) concealment (B) bluff (C) luck (D) application of logic (E) cheat
33. A game involved no concealment is a game of _____.
- (A) perfect information (B) imperfect information (C) sheer chance (D) honest
(E) cheat
34. To “delude” probably means to _____.
- (A) enjoy (B) believe (C) deceive (D) depend on (E) illusion
35. What can be inferred in the last paragraph?
- (A) Most businessmen believe they are honest players in games.
(B) Most businessmen are also interested in gambling.
(C) Most businessmen like to cheat in the games.
(D) Most businessmen might underestimate the risks they play.
(E) Most businessmen might overestimate the risks they play.

Though many environmentalists and other proponents strongly advocate solar energy as a prime source of power, harvesting it and using it on a long-term basis is problematic. Until more of these basic problems have been ironed out, there seems to be little hope that this will turn into a major source of energy for our communities.

36. What can be inferred from the passage?
- (A) The author regards solar energy as an inexhaustible energy.
(B) Solar energy is an efficient alternative.
(C) The author is less optimistic than the environmentalists with regard to the use of solar energy.
(D) Many environmentalists protest against the problematic use of solar energy.
(E) It is totally impossible to use solar energy.
37. The word “proponents” in the first line means _____.
- (A) protesters (B) competitors (C) technicians (D) realists (E) supporters
38. The phrase “ironed out” means _____.
- (A) revolved (B) dissolved (C) solved (D) evolved (E) involved

There were many reasons why the whole character of the twentieth century should be very different from that of the nineteenth. The great wave of vitality and national expansions, which, during the Victorian period, swept both England and America to a high water mark of national prosperity, left in its ebb a highly developed industrial civilization and a clear path for all the currents of scientific and mechanistic thought which were to flood the new century. But literature, which had been nourished by the general vigor of the time, and not at all by the practical interests of the period, declined as the spirit itself dispersed.

The great age of groups and “movements” began. The eighteenth century poets did not call themselves classicists, nor the nineteenth century poets call themselves romanticists; their poetic coloring was simply the quality of their whole response to the whole of life. But the literary history of the late nineteenth and early twentieth centuries is full of theories and “isms” which provided artistic creeds for artist groups, and set the individual artist apart from the community in the popular opinion.

39. What is the character of the literary history of the 19th and the 20th centuries?
- (A) It is full of literary anecdotes. (B) It is full of theories and “isms.”
(C) It is full of “isms” only. (D) It has neither theories nor “isms.”
(E) It is full of romantic thoughts.

40. What was the poetic coloring of the poets of the 19th and 20th centuries?
(A) It was only the reflecting quality to life. (B) It was nothing but the reaction to life.
(C) It was only the responsive quality to the whole of life. (D) It was only the indefinable quality of life.
(E) It was the most mysterious quality to life.

41. The best title for this article is _____.
(A) *Effects of Industrialism* (B) *Literature of the Victorian Period*
(C) *“Isms” of the Present Century* (D) *Literature in the 19th and 20th Centuries*
(E) *The Revolution in Literature*

42. In England and America the Victorian period as a whole was an age of national _____.
(A) warfare (B) depression (C) literary corruption (D) growth (E) welfare

43. At the close of the Victorian period, literature was _____.
(A) prosperous (B) homogeneous (C) on the wane (D) energetic (E) complicated

Abortion is becoming increasingly prevalent both in the USA and in other nations, such as India. Because of cultural biases against females, the unborn babies aborted due to their sex are usually girls. Who could imagine a more blatant denial of sexual equality than killing unborn babies merely because they are little girls instead of little boys? But shockingly, many militant feminists argue that this practice must be tolerated to preserve “choice”. Certainly, the overwhelming majority in the USA would reject the argument that a woman has a “right” to kill her unborn baby merely because she prefers a child of the other sex. Polls show that people favor legal abortion only under extreme circumstances—which actually apply to only a few percent of the abortions performed each year.

Yet abortion for sex selection is legal. The public is slowly coming to understand that the Supreme Court did not legalize abortion only during the first three months of pregnancy, or only for certain reasons. For all practical purposes, the Supreme Court struck down all legal restrictions on abortion for all nine months of pregnancy. Many people believe that whatever is legal is right. Unless the law changes, the use of abortion for sex selection will become increasingly common.

New medical technologies have resulted in many exciting benefits for women and babies. Technology, however, must be used with compassion and responsibility. The use of amniocentesis for sex selection is one glaring example of a technology abused for selfish and destructive purposes. This abuse of technology should not be permitted.

44. The increase of abortions in India is caused due to _____.
(A) conventional medical technologies (B) prejudice against certain gender
(C) legalization of abortion (D) malnutrition (E) government policy of birth control

45. What does the author think of some feminists’ attitude toward sex selection?
(A) offensive (B) progressive (C) reformist (D) tolerable (E) revolutionary

46. The author purports to _____.
(A) criticize the Supreme Court for its restrictions on abortion
(B) censure the feminists who favor little boys
(C) stop abortions under all kinds of circumstances
(D) criticize the waste of medical resources
(E) stop abortions performed due to gender biases

47. According to the author, new medical technologies are beneficial when they are used _____.
(A) legally (B) practically (C) daringly (D) conventionally (E) sensibly

It is obvious to a woman when another woman is upset or feeling hurt, while a man generally has to physically witness tears or a temper tantrum or be slapped on the face before he even has a clue that anything is going on. Like most female mammals, women are equipped with far more finely tuned sensory skills than men. As child bearers and nest defenders, they need the ability to sense subtle mood and attitude changes in others. What is commonly called “women’s intuition” is mostly a woman’s acute ability to notice small details and changes in the appearance or behavior of others. It’s something that, throughout history, has bewildered men who play around—and are invariably caught.

One of our friends said he couldn't believe how wonderful his wife's eyesight was when he had something to hide but how it seemed to desert her totally when it came to backing the car into the garage. Estimating the distance between the car fender and the garage wall while moving it, however, a spatial skill located mainly in the right front hemisphere in men, is not strong in most women.

48. What is the main purpose of this article?

- (A) Women can speak and listen simultaneously, while at the same time accusing men of being able to do neither.
- (B) To explain the similarities between sensory perception of men and women.
- (C) Women have wider peripheral vision; men have tunnel vision.
- (D) A strong immune system can make a man seem strangely compelling.
- (E) To explain the differences between sensory perception of men and women.

49. According to the article, what does "women's intuition" mean?

- (A) It's the difference between the way men and women think and communicate.
- (B) It is a woman's acute ability to notice small details and changes in the appearance or behavior of others.
- (C) Women don't mind admitting mistakes because, in their world, it's seen as a form of bonding and building trust.
- (D) Women perceive thinking aloud as being friendly and sharing, but men see it differently.
- (E) It's the similarity between the way men and women think and communicate.

Life on this planet would not be possible without water. Usually we think water as a liquid. Water is important in another form, as a solid, as ice. Water is in the air, too, as a gas that we cannot see. Liquids, solids and gases are the three natural states of matter.

50. Which word means the same as matter?

- (A) form
- (B) balance
- (C) cycle
- (D) substance
- (E) part

About 30 % of adults say they don't feel rested when they wake up in the morning. They could be suffering from any one of 17 different sleep disorders. In our lecture today, we're going to examine three of them: sleep apnea, narcolepsy and insomnia.

Let's start with sleep apnea. People who have sleep apnea stop breathing several times a night, sometimes for 10 seconds or longer. And not just once; sometimes from 30 to several hundred times a night. And each time this happens, they wake up and go right back to sleep. So their sleep is constantly interrupted. The sleeper is not aware of these interruptions, only of being tired and sleepy the next day. In addition, one sign is heavy or loud snoring combined with constant fatigue during the day.

The cause of this problem is not enough oxygen going through the airway usually because the throat is too relaxed and blocked. Consequently the treatment is very simple: The person wears a mask attached to a special machine. This ensures continuous, regular breathing throughout the night.

The second sleep disorder is narcolepsy. Narcoleptic persons get sudden attacks of sleep, in the middle of the day, any time, any place. They can't control the attack, so they suddenly fall asleep for brief periods of time. It comes without warning, due primarily to high levels of certain chemicals in the part of the brain that regulates sleep. Once narcolepsy is diagnosed, it's usually successfully treated with medication.

Let's go on now to the most common sleep disorder, insomnia. Insomnia means difficulty in falling asleep or staying asleep. I am not talking about just occasional difficulties. Insomnia is considered a serious problem when it becomes chronic; that is, when sleeping becomes difficult for several weeks or even months at a time. The reason could be either physical or psychological. Most often, it is psychological; that is, it's caused by stress. Or the cause could be physical, such as too much caffeine or nicotine in your body. Both of these chemicals are stimulants and will keep you from sleeping.

There are many effective ways to deal with insomnia, some good and some bad. Obviously avoid stimulants like coffee, tea and cigarettes in the evening is a good idea. Some other methods that doctors recommend are, first, listening to relaxation CDs or soft music, and second, doing self-hypnosis, which you can learn easily with the help of a trained specialist. Then there is always TV—some people find watching TV helpful. And reading a boring book can be very effective.

51. How many sleep disorders are discussed in the above lecture?

- (A) one
- (B) two
- (C) three
- (D) seventeen
- (E) eight

52. Which disorder is the most dangerous while driving?
(A) narcolepsy (B) insomnia (C) snoring (D) sleep apnea (E) fatigue
53. Which is an effective way to deal with narcolepsy?
(A) medication (B) stimulant (C) machine (D) self-hypnosis (E) sleeping pills
54. Which results in sleep apnea?
(A) chemicals (B) stress (C) nicotine (D) relaxed throat (E) fatigue
55. Which is **NOT** a symptom for any of the sleep disorders discussed in the lecture?
(A) sleep interrupted (B) hypnosis
(C) sudden attacks of sleep (D) snores a lot and appears to be sleepy all the time
(E) chronic difficulty in falling asleep

V. Composition: Please write an essay of 180-200 words in an appropriate style on the following topic. 20 points.

Topic: The Stresses of Being a Celebrity

高雄醫學大學九十四學年度學士後醫學系招生考試試題

科目:微積分

考試時間: 80 分鐘

說明: 一、選擇題用 2B 鉛筆在「答案卡」上作答, 修正時應以橡皮擦擦拭, 切勿使用修正液(帶), 未遵照正確作答方法而致電腦無法判讀者, 考生自行負責。
二、試題及答案卡必須繳回, 不得攜出試場。

(一) 是非題 20%, (是, 請在答案卡 (A) 欄劃記; 非, 請在答案卡 (B) 欄劃記。在其他欄位劃記者, 不予計分, 每題 2 分, 答錯不倒扣。)

1. Given that $x = r \cos \theta$ and $y = r \sin \theta$, then $\frac{\partial x}{\partial r} \frac{\partial y}{\partial \theta} - \frac{\partial x}{\partial \theta} \frac{\partial y}{\partial r} = -r$.
2. If $f(x) = \frac{3x^2 + x}{x}$ and $0 < |x| < \frac{\epsilon}{3}$ then $|f(x) - 1| < \epsilon$.
3. If $\lim_{x \rightarrow \infty} \frac{f(x)}{g(x)} = -1$, then $\lim_{x \rightarrow \infty} [f(x) + g(x)] = 0$.
4. If $\sum a_n$ does not converge, then $\sum |a_n|$ does not converge.
5. If f' is continuous on $R = (-\infty, \infty)$ and $\lim_{x \rightarrow \infty} f(x) = 0$, then $\int_1^{\infty} f'(x) dx = -f(1)$.
6. If f is a differentiable real value function on (a, b) and $c \in (a, b)$ such that $f'(c) = 0$, then f has a relative maximum or minimum at c .
7. If f' is bounded, then f is bounded.
8. The $\lim_{x \rightarrow \infty} (x - \sqrt{x^2 + x}) = 0$.
9. If a function $f: [a, b] \rightarrow R$ is continuous, then f is Riemann integrable.
10. $\int_{-2}^3 \int_1^5 e^{x^2-y} dx dy = \int_1^5 \int_{-2}^3 e^{x^2-y} dy dx$.

(二) 選擇題: 80% (單選題, 每題 5 分, 答錯倒扣 1.25 分, 倒扣至本大題零分為止, 未作答不給分亦不扣分。)

11. If the interval of convergence for power series $\sum_{n=0}^{\infty} a_n x^{n+1}$ is $(-2, 2)$, then the interval of convergence for power series $\sum_{n=0}^{\infty} a_n (x-1)^{2n}$ is :
 (A) $(-\sqrt{2}, \sqrt{2})$ (B) $(-2, 2)$ (C) $(0, 4)$ (D) $(1 - \sqrt{2}, 1 + \sqrt{2})$ (E) $(-1, 1)$
12. $\int_0^{\sqrt{3}} \frac{1}{(1+x^2)^{\frac{3}{2}}} dx = ?$
 (A) $\frac{1}{2}$ (B) $\sqrt{3}$ (C) $\frac{\sqrt{3}}{2}$ (D) $-\frac{1}{2}$ (E) $-\frac{\sqrt{3}}{2}$
13. Find the arc length of the curve $y = \int_1^x \sqrt{t^5 - 1} dt$, $1 \leq x \leq 4$.
 (A) 36 (B) $\frac{30}{4}$ (C) $\frac{62}{5}$ (D) $\frac{126}{6}$ (E) $\frac{254}{7}$
14. Find the derivative of the function $f(x) = 2^{-x} \sin x^2$.
 (A) $2^{-x+1} x \cos x^2 - 2^{-x-1} \sin x^2$ (B) $2^{-x+1} x \cos x^2 - 2^{-x} \ln 2 \sin x^2$ (C) $2^{-x} \cos x^2 - 2^{-x-1} \sin x^2$
 (D) $2^{-x} x \cos x^2 - 2^{-x-1} \ln 10 \sin x^2$ (E) $2^{-x+1} x \cos x^2 - 2^{-x} \sin x^2$

15. $\int_4^6 \frac{1}{x^2 - 5x + 6} dx = ?$
 (A) 3 (B) $\ln 3 - \ln 2$ (C) $2 \ln 2$ (D) $\ln 2 - \ln 3$ (E) $2 \ln 3$
16. If $f(x) = \cos 2x$, find the value of $f^{(8)}(0)$.
 (A) 128 (B) -128 (C) -256 (D) 256 (E) 512
17. The gamma function $\Gamma(n)$ is defined by $\Gamma(n) = \int_0^\infty x^{n-1} e^{-x} dx, n > 0$. Find $\Gamma(2)$.
 (A) 0 (B) 1 (C) 2 (D) 3 (E) 4
18. Find the area of the region that lies inside both the curves $r = 4 \sin \theta$ and $r = 4 \cos \theta$.
 (A) $2\pi + 1$ (B) $2\pi - 1$ (C) $2\pi + 4$ (D) $2\pi - 4$ (E) 2π
19. Find the terms of the Maclaurin series for $f(x) = \frac{1}{\sqrt{1+2x}}$, as far as the term in x^3 .
 (A) $1 - x + x^2 - x^3$ (B) $1 + x - \frac{1}{2}x^2 + \frac{1}{3}x^3$ (C) $1 - x + \frac{3}{2}x^2 - \frac{5}{2}x^3$
 (D) $1 + x + 3x^2 + 5x^3$ (E) $1 - x + \frac{3}{2}x^2 - \frac{7}{3}x^3$
20. Find the volume of the solid bounded below by the xy -plane and above by the paraboloid $z = 1 - (x^2 + y^2)$.
 (A) π (B) $\frac{\pi}{2}$ (C) $\frac{\pi}{3}$ (D) $\frac{\pi}{4}$ (E) $\frac{\pi}{8}$
21. How many local maximum points in the following function: $f(x, y) = -\frac{1}{4}x^4 + \frac{2}{3}x^3 + 4xy - y^2$.
 (A) none (B) 1 (C) 2 (D) 3 (E) 4
22. $\lim_{n \rightarrow \infty} \left(\frac{n}{n^2+1} + \frac{n}{n^2+4} + \frac{n}{n^2+9} + \dots + \frac{n}{2n^2} \right) = ?$
 (A) 0 (B) $\frac{1}{2}$ (C) π (D) $\frac{\pi}{2}$ (E) $\frac{\pi}{4}$
23. If $F(x) = \int_0^{x^2} \frac{\sin(xt)}{t} dt$, find $F'(x)$ where $x \neq 0$.
 (A) $\frac{3 \sin x^3}{x^2}$ (B) $\frac{\sin x^3}{x^2}$ (C) $\frac{3 \sin x^3}{x}$ (D) $\frac{2 \cos x^3}{x}$ (E) $\frac{2 \sin x^3}{x}$
24. $\lim_{x \rightarrow 0} \frac{3 \sin \pi x - \sin 3\pi x}{x^3} = ?$
 (A) 0 (B) π (C) π^2 (D) $2\pi^3$ (E) $4\pi^3$
25. $\int_0^4 \int_{y/2}^2 e^{x^2} dx dy = ?$
 (A) $e^4 - 1$ (B) e^4 (C) $\frac{e^4 - 1}{4}$ (D) $\frac{e^2 - 1}{2}$ (E) $\frac{e^2}{2}$
26. The maximum value of the function $f(x, y, z) = x + 2y + 3z$ subject to the constraint $x^2 + y^2 + z^2 = 25$ is _____.
 (A) $7\sqrt{14}$ (B) $\frac{60}{\sqrt{14}}$ (C) $5\sqrt{14}$ (D) 15 (E) $\frac{30}{\sqrt{14}}$

高雄醫學大學九十四學年度學士後醫學系招生考試試題

科目：普通生物學

考試時間：80 分鐘

說明：一、選擇題用 2B 鉛筆在「答案卡」上作答，修正時應以橡皮擦擦拭，切勿使用修正液（帶），未遵照正確作答方法而致電腦無法判讀者，考生自行負責。
二、試題及答案卡必須繳回，不得攜出試場。

I. 【單選題】1-30 題，每題 1 分，共計 30 分。答錯一題倒扣 0.25 分，倒扣至本大題零分為止，未作答時，不給分亦不扣分。

1. Which of the following metabolic pathways is common to both aerobic and anaerobic processes of sugar breakdown?
(A) the Krebs cycle (B) the electron transport chain
(C) conversion of pyruvic acid to lactic acid (D) glycolysis
(E) conversion of pyruvic acid to acetyl CoA
2. The recombination frequency between gene B and gene C is 11%. The recombination frequency between gene B and gene D is 5%. The recombination frequency between gene C and gene D is 15%. What would be the arrangement of these genes on a linkage map?
(A) DBC (B) CDB (C) BCD (D) DCB
(E) More information is needed
3. What is the key to the recognition of codominance?
(A) The phenotype of the heterozygote falls between the phenotypes of the homozygotes.
(B) The trait exhibits a continuous distribution.
(C) The alleles affect more than one trait.
(D) The dominant allele is not always expressed.
(E) The heterozygote expresses the phenotype of both homozygotes.
4. What is the correct order of the stages of translation?
(A) initiation, peptide bond formation, translocation, codon recognition, termination
(B) initiation, peptide bond formation, codon recognition, translocation, termination
(C) initiation, codon recognition, translocation, peptide bond formation, termination
(D) initiation, translocation, codon recognition, peptide bond formation, termination
(E) initiation, codon recognition, peptide bond formation, translocation, termination
5. During negative pressure breathing, _____.
(A) the diaphragm moves downward and the rib muscles contract, increasing the size of the chest cavity and decreasing the air pressure within the chest cavity
(B) you suck in air
(C) the diaphragm and rib muscles contract, decreasing the size of the chest cavity and increasing the pressure within the chest cavity
(D) the diaphragm moves downward and the rib muscles relax, increasing the size of the chest cavity and decreasing the air pressure within the chest cavity
(E) an increase in air pressure within the lungs draws air in
6. Why do cigarette smokers cough more than most people do?
(A) The tar in cigarette smoke tends to make alveoli stick closed. Coughing opens them.
(B) Coughing is the respiratory system's attempt to clear itself of the toxins found in smoke.
(C) Cigarette smoking partially paralyzes the lungs; coughing exchanges the resultant "dead air".
(D) Coughing stimulates blood flow to the lungs.
(E) By raising the pressure in the lungs, coughing forces more oxygen into the blood.

7. Which of the following substances does a cytotoxic T cell secrete to destroy a target cell?
 (A) interferon (B) complement (C) antibodies (D) pyrogen (E) perforin
8. Which of the following structures does not develop from mesodermal tissue?
 (A) muscles (B) kidneys (C) heart (D) nervous system
 (E) All of these develop from mesoderm.
9. During muscle contraction, within a sarcomere the _____.
 (A) thin filaments get thicker (B) thick filaments move closer together
 (C) Z lines move closer together (D) thick filaments get thicker
 (E) Z lines move closer to the plasma membrane
10. Which, if any, of the following types of personal characteristics is not based in the cerebral cortex?
 (A) reasoning abilities (B) mathematical abilities (C) artistic talents
 (D) personality traits (E) All of the choices are based in the cerebral cortex.
11. The function of CD4 and CD8 is to assist T cells in
 (A) enhancing secretion of proteins such as interferon. (B) activating B cells and other T cells.
 (C) binding of the MHC-antigen complex. (D) recognition of self cells.
 (E) secretion of antibodies specific for each antigen.
12. *Arabidopsis* is the first plant to have its entire genome sequenced and acts as a model system for plant biologist. Which of the following characteristics is (are) the attribute(s)?
 (A) tiny genome (B) a short generation (C) small size (D) A and B (E) all of the above
13. Phloem translocates its sap from sugar sources to sugar sinks. Which of the following would **not** normally function as a sink?
 (A) shoot tips (B) mature leaves (C) fruits (D) growing roots (E) stems
14. Mycorrhizae is the mutualistic association between _____ and _____.
 (A) roots , algae (B) roots , fungi (C) algae , fungi (D) roots , lichen (E) algae , lichen
15. Which hormones has been shown to trigger stem elongation, fruit growth, and seed germination?
 (A) auxin (B) cytokinin (C) gibberellin (D) abscisic acid (E) ethylene
16. Plants that fix CO₂ into organic acids at night when the stoma are open and carry out the Calvin cycle during the day when the stoma are closed are called
 (A) C₃ plants. (B) C₄ plants. (C) CAM plants. (D) all of the above (E) none of the above
17. Which of the following is not considered the final product of the expression of a gene?
 (A) a polypeptide chain (B) an mRNA molecule (C) a tRNA molecule (D) an rRNA molecule (E) snRNA molecule
18. Which of the following viruses is a DNA virus?
 (A) Tobacco mosaic virus (B) Adenovirus (C) Influenza virus (D) Retrovirus (E) Picornavirus
19. Peroxisomes
 (A) photosynthesize. (B) produce hydrogen peroxide.
 (C) are not enclosed by a membrane. (D) synthesize steroids.
 (E) contain plastids.
20. Which of the following stages in mitotic cell division reveals centromeres uncouple, sister chromatids are separated, and the two new chromosomes move to opposite poles of the cell?
 (A) telophase (B) prophase (C) anaphase (D) metaphase (E) prometaphase
21. The impact of a single gene on more than one trait is called
 (A) incomplete dominance. (B) pleiotropy. (C) codominance.
 (D) polygenic inheritance. (E) blending inheritance.

22. Which of the following is an explanation of why a single gene may code for more than one polypeptide?
 (A) protein degradation (B) alternative RNA splicing
 (C) genetic differentiation (D) addition of 5'-caps and poly(A) tails
 (E) signal peptides target to polypeptides
23. The dominant stage of mosses is the
 (A) sporophyte. (B) gametophyte. (C) pollen. (D) ovule. (E) none of the above
24. The male gametophyte of a conifer is represented by which of the following?
 (A) sperm (B) spore (C) pollen tube (D) pollen grain (E) none of the above
25. When using a cladistic approach to systematics, which of the following is considered most important for classification?
 (A) the degree of evolutionary divergence. (B) analogous primitive characters.
 (C) shared primitive characters. (D) overall phenotypic similarity.
 (E) shared derived characters.
26. Which of these prokaryotes are most likely to be found in the immediate vicinity of active deep-sea vents?
 (A) aerobically respiring bacteria (B) bacteria adapted to being embedded in ice (C) archaea
 (D) N₂-fixing root nodule bacteria (E) cyanobacteria
27. What are the most abundant and diverse vertebrates?
 (A) birds (B) mammals (C) reptiles (D) bony fishes (E) amphibians
28. Which of the following are the only modern animals that may have descended directly from dinosaurs?
 (A) birds (B) lizards (C) snakes (D) crocodiles (E) mammals
29. The smallest biological unit that can evolve over time is
 (A) a population. (B) a cell. (C) an ecosystem. (D) a community.
 (E) an individual organism.
30. Which of the following statements about "community" is **incorrect**?
 (A) Community is the biotic section of an ecosystem.
 (B) A community can be defined as any assemblage of populations in an area.
 (C) A botanist may use 'plant community' to describe the composition of plant species in a specific habitat.
 (D) Community ecology emphasizes the interactions between different species.
 (E) Community functions as an integrated unit.
- II. 【單選題】 31-65 題，每題 2 分，共計 70 分。答錯一題倒扣 0.5 分，倒扣至本大題零分為止，未作答時，不給分亦不扣分。
31. Which of the following is **incorrectly** paired with its structure and function?
 (A) xylem-a kind of vascular tissue that transports water and minerals
 (B) phloem-a kind of vascular tissue that transports sugar
 (C) periderm-protective coat of woody stems and roots
 (D) pericycle-waterproof ring of cells surrounding central stele in roots
 (E) fiber-a kind of sclerenchyma cell with secondary walls
32. Xerophytes have evolutionary adaptations that reduce transpiration. Which of the following is not the adaptation?
 (A) multiple-layered epidermis (B) thick cuticle
 (C) stomata concentrated on the lower leaf surface (D) trichome concentrated on the upper dermal tissue
 (E) fix CO₂ as CAM pathway

33. Botanist found that ethylene could induce triple response in pea seedlings. Which of the following characteristics is **not** the effect caused by ethylene?
- (A) a slowing of stem elongation (B) a slowing of root elongation
 (C) a curvature that causes stem to grow horizontally (D) a thickening of the stem
 (E) none of the above
34. How might a plant respond to severe flooding?
- (A) It increases ethylene production which causes apoptosis in root cells.
 (B) It increases the proportion of unsaturated fatty acids in cell membranes to reduce their fluidity.
 (C) It reduces transpiration and closes the stomata.
 (D) It produces heat-shock proteins that may protect the plant's proteins from denaturing.
 (E) It orients leaves toward the sun to increase evaporative cooling.
35. Which of the following sequences correctly represents the flow of electrons during photosynthesis?
- (A) $H_2O \rightarrow NADPH \rightarrow$ Calvin cycle (B) $H_2O \rightarrow$ photosystem I \rightarrow photosystem II
 (C) $NADPH \rightarrow$ chlorophyll \rightarrow Calvin cycle (D) $NADPH \rightarrow$ electron transport chain $\rightarrow O_2$
 (E) $NADPH \rightarrow O_2 \rightarrow CO_2$
36. During conjugation between Hfr cell and an F^- cell, what happened?
- (A) All the F^- cells become Hfr cells.
 (B) All the F^- cells become F^+ cells.
 (C) Genes from the Hfr cell may replace genes of the F^- cells by recombination.
 (D) The chromosome of the F^- cell is completely replaced by the chromosome of the Hfr cell.
 (E) DNA from the F^- cell transfers to the Hfr cell and DNA from the Hfr cell transfers to the F^- cell.
37. Which of the following is not the function of microtubules?
- (A) Maintenance of cell shape (B) Cell motility (C) Muscle contraction
 (D) Chromosomes movements in cell division (E) Organelle movements
38. Crossing-over occurs during which phase of meiosis?
- (A) prophase I (B) anaphase I (C) telophase I (D) prophase II (E) metaphase II
39. Angiosperms are the most successful terrestrial plants. This success is due to all of the following **except**
- (A) reduced gametophyte. (B) fruits enclosing seeds. (C) xylem with vessels.
 (D) animal pollination. (E) sperm cells with flagella.
40. Which of the following distinguishes cardiac muscle from both smooth and skeletal muscle?
- (A) Its cells contract. (B) Its cells are branched.
 (C) Its cells are striped. (D) It generally cannot be contracted at will.
 (E) It generally can be contracted at will.
41. In the sarcomeres of skeletal muscle fibers, Ca^{2+} binds to a site on the
- (A) Z line. (B) myosin head. (C) thick filament. (D) thin filament.
 (E) neuromuscular junction.
42. Which of the following receptors is **incorrectly** paired with its category?
- (A) cone-deep-pressure receptor (B) rod-photoreceptor (C) muscle spindle-mechanoreceptor
 (D) hair cell-mechanoreceptor (E) gustatory receptor-chemoreceptor
43. Where along the kidney tubule is glucose reabsorbed from the filtrate back into the blood?
- (A) Bowman's capsule (B) distal tubule (C) collecting duct (D) loop of Henle (E) proximal tubule

44. Which of the following statements is true about control mechanism in eukaryotic cells?
- (A) Lampbrush chromosomes are areas of active tRNA synthesis.
 - (B) Methylation of DNA may cause inactivity in part or all of a chromosome.
 - (C) Histone acetylation may inhibit gene expression.
 - (D) Eukaryotic genes are organized in large operon systems.
 - (E) Active gene transcription occurs in the heterochromatic regions of the nucleus.
45. Which of the following genes establishes the overall anterior-posterior axis of the embryo?
- (A) bicoid gene (B) gap genes (C) pair-rule genes (D) segment-polarity genes
 - (E) homeotic genes
46. The yolk sac of humans _____.
- (A) stores nutrients to support the developing embryo
 - (B) is evidence of humans' relationship to egg-laying vertebrates
 - (C) secretes HCG
 - (D) absorbs nutrients from, and releases waste to, the mother's blood
 - (E) envelops the developing fetus
47. What is the function of the polar bodies that are produced during oogenesis?
- (A) They are the mechanism that allows for the shedding of excess cytoplasm during the production of a haploid ovum.
 - (B) They are the mechanism that allows for the shedding of excess nutrients during the production of a haploid ovum.
 - (C) They are the mechanism that allows for the shedding of excess genetic material during the production of a haploid ovum.
 - (D) They are the mechanism that allows for the shedding of excess mitochondria during the production of a haploid ovum.
 - (E) They are the mechanism that allows for streamlining of the ovum so as to facilitate the penetration of an ovum by a sperm.
48. Which of the following effects could result from activation of the sympathetic nervous system?
- (A) decreased blood pressure (B) decreased heart rate (C) decreased rate of digestion
 - (D) constriction of the bronchi (E) decreased rate of breathing
49. The clonal selection theory implies that
- (A) related people have similar immune responses. (B) antigens activate specific lymphocytes.
 - (C) only certain cells can produce interferon. (D) memory cells are present at birth.
 - (E) the body selects which antigens it will respond to.
50. A transfusion of type A blood given to a person who has type O blood would result in
- (A) the recipient's B antigens reacting with the donated anti-B antibodies.
 - (B) the recipient's anti-A antibodies clumping the donated red blood cells.
 - (C) the recipient's anti-A and anti-O antibodies reacting with the donated red blood cells if the donor was a heterozygote (Ai) for blood type.
 - (D) no reaction because type O is a universal donor.
 - (E) no reaction because the O-type individual does not have antibodies.
51. Why can normal immune responses be described as polyclonal?
- (A) Blood contains many different antibodies to many different antigens.
 - (B) Construction of a hybridoma requires multiple types of cells.
 - (C) Multiple immunoglobulins are produced from descendants of a single B cell.
 - (D) Diverse antibodies are produced for different epitopes of a specific antigen.
 - (E) Macrophages, T cells, and B cells all are involved in normal immune response.

52. There are 61 mRNA codons that specify an amino acid, but only 45 tRNAs. This is best explained by the fact that
- (A) some tRNAs have anticodons that recognize two or more different codons.
 - (B) the rules for base pairing between the third base of a codon and tRNA are flexible.
 - (C) inosine can hydrogen-bond with G, C, U or A.
 - (D) A and B are true.
 - (E) A, B, and C are true.
53. As a ribosome translocates along an mRNA molecule by one codon, which of the following occurs?
- (A) The tRNA that was in the A site moves into the P site.
 - (B) The tRNA that was in the P site moves into the A site.
 - (C) The tRNA that was in the P site moves to the E site and is released.
 - (D) The tRNA that was in the A site departs from the ribosome.
 - (E) Both A and C are correct.
54. What are polyribosomes?
- (A) ribosomes associated with more than one tRNA
 - (B) aggregations of vesicles containing ribosomal RNA
 - (C) multiple copies of ribosomes found associated with giant chromosomes
 - (D) ribosomes containing more than two subunits
 - (E) groups of ribosomes reading the same mRNA simultaneously
55. Why is it difficult to get bacteria to express genes directly from eukaryotic DNA?
- (A) Eukaryotic genes are not transcribed in a single transcript.
 - (B) Eukaryotic genes do not contain enhancer sequences.
 - (C) Eukaryotic genes contain introns.
 - (D) Eukaryotic genes lack controlling regions.
 - (E) Eukaryotic genes may contain transposons.
56. The following scientists made significant contributions to our understanding of the structure and functions of DNA:
- | | | |
|--------------------------------|---------------------|------------------------|
| I. Avery, McCarty, and MacLeod | II. Chargaff | III. Hershey and Chase |
| IV. Meselson and Stahl | V. Watson and Crick | |
- Place the scientists' names in the correct chronological order, starting with the oldest contribution.
- (A) V, IV, II, I, III
 - (B) II, I, III, V, IV
 - (C) I, II, III, V, IV
 - (D) I, II, V, IV, III
 - (E) II, III, IV, V, I
57. Of these steps, which one occurs earliest in the process of producing recombinant DNA?
- (A) Human DNA fragments are mixed with the cut plasmids.
 - (B) The same restriction enzyme is used to isolate the gene of interest and to cut the plasmid DNA.
 - (C) Bacteria bearing the plasmid of interest are treated with antibiotics.
 - (D) The recombinant plasmids are mixed with bacteria.
 - (E) Bacteria carrying recombinant plasmids are cloned.
58. The major factor that restricts a fundamental niche to a realized niche is:
- (A) climate.
 - (B) competition.
 - (C) a density-independent factor.
 - (D) species richness.
 - (E) whether it is an autotroph or heterotroph.
59. The high levels of pesticides found in birds of prey is an example of
- (A) chemical cycling through an ecosystem.
 - (B) eutrophication.
 - (C) predation.
 - (D) the green world hypothesis.
 - (E) biological magnification.
60. The total biomass of photosynthetic autotrophs present in an ecosystem is known as the
- (A) gross primary production
 - (B) trophic efficiency.
 - (C) secondary production
 - (D) standing crop.
 - (E) net primary production.

61. The fundamental difference between materials and energy in an ecosystem is that
- (A) energy is cycled through ecosystems; materials are not.
 - (B) energy can be converted into materials; materials cannot be converted into energy.
 - (C) materials can be converted into energy; energy cannot be converted into materials.
 - (D) ecosystems are much more efficient in their transfer of energy than in their transfer of materials.
 - (E) materials are cycled through ecosystems; energy is not.
62. Nitrogen is available to plants only in the form of
- (A) nitrate.
 - (B) nitrite.
 - (C) ammonium.
 - (D) A and C.
 - (E) A, B, and C.
63. Which of the following statements about coral reef is **not** true?
- (A) Corals are a diverse group of cnidarians.
 - (B) Corals can excrete external, carbonaceous skeletons.
 - (C) Symbiotic dinoflagellate algae live in their tissue.
 - (D) High water temperatures cause corals to 'bleach'.
 - (E) The problem of bleaching in corals at Kenting National Park is especially severe in winter months.
64. Fire ants (*Solenopsis invicta*) are native to
- (A) South America.
 - (B) Australia.
 - (C) Africa.
 - (D) Southeast Asia.
 - (E) North America.
65. Which of the following statements about protected areas is **not** correct?
- (A) Protected area management must be coordinated with management of lands outside the protected zone.
 - (B) Taiwan now has protected over 35% of the land areas.
 - (C) National parks are only one type of protected area.
 - (D) Most protected areas are small in size.
 - (E) The black-faced spoonbill (*Platalea minor*) has its own protected area at Tainan County.

高雄醫學大學九十四學年度學士後醫學系招生考試試題

科目:化學

考試時間: 80 分鐘

說明: 一、選擇題用 2B 鉛筆在「答案卡」上作答, 修正時應以橡皮擦擦拭, 切勿使用修正液(帶), 未遵照正確作答方法而致電腦無法判讀者, 考生自行負責。
二、試題及答案卡必須繳回, 不得攜出試場。

I. Choose one correct answer for the following questions

【單選題】每題 1 分, 共計 60 分, 答錯一題倒扣 0.25 分, 倒扣至本大題零分為止, 未作答, 不給分不扣分。

- If the equilibrium constant for $A + B \rightleftharpoons C$ is 0.123, then the equilibrium constant for $2C \rightleftharpoons 2A + 2B$ is _____.
(A) $1.00-2(0.123)$ (B) 8.13 (C) 0.123 (D) 66.1 (E) 16.3
- Consider the following rate law: $\text{Rate} = k[A]^n[B]^m$.
How are the exponents n and m determined?
(A) By using the balanced chemical equation
(B) By using the subscripts for the chemical formulas
(C) By using the coefficients of the chemical formulas
(D) By educated guess
(E) By experiment
- How many oxygen atoms are there in one formula unit of $\text{Ca}_3(\text{PO}_4)_2$?
(A) 2 (B) 4 (C) 6 (D) 8 (E) none of these
- An unknown substance dissolves readily in water but not in benzene (a nonpolar solvent). Molecules of what type are present in the substance?
(A) neither polar nor nonpolar (B) polar (C) either polar or nonpolar
(D) nonpolar (E) none of these
- Which of the species below, when dissolved in H_2O , will not produce a basic solution?
(A) SO_2 (B) NH_3 (C) BaO (D) $\text{Ba}(\text{OH})_2$ (E) none of these
- Consider the reaction: $\text{CaCl}_2(\text{s}) + 2\text{H}_2\text{O}(\text{g}) \rightleftharpoons \text{CaCl}_2 \cdot 2\text{H}_2\text{O}(\text{s})$
The equilibrium constant for the reaction as written is _____.
(A) $K = [\text{CaCl}_2 \cdot 2\text{H}_2\text{O}] / ([\text{CaCl}_2][\text{H}_2\text{O}]^2)$ (B) $K = 1/[\text{H}_2\text{O}]^2$ (C) $K = 1/2[\text{H}_2\text{O}]$
(D) $K = [\text{H}_2\text{O}]^2$ (E) $K = [\text{CaCl}_2 \cdot 2\text{H}_2\text{O}] / [\text{H}_2\text{O}]^2$
- Which of the following concentration measures will change in value as the temperature of a solution changes?
(A) mass percent (B) mole fraction (C) molality (D) molarity (E) all of these
- A solution containing 296.6g of $\text{Mg}(\text{NO}_3)_2$ per liter has a density of 1.114 g/mL. The molarity of the solution is:
($\text{Mg}(\text{NO}_3)_2$: 148.3 g/mol).
(A) 2.000 M (B) 2.446 M (C) 6.001 M (D) 1.805 M (E) none of these
- Calculate the molality of $\text{C}_2\text{H}_5\text{OH}$ in a water solution that is prepared by mixing 50.0 mL of $\text{C}_2\text{H}_5\text{OH}$ with 100.0 mL of H_2O at 20°C . The density of the $\text{C}_2\text{H}_5\text{OH}$ is 0.789 g/mL at 20°C . ($\text{C}_2\text{H}_5\text{OH}$: 46.07 g/mol. Density of H_2O is 1 g/cm^3).
(A) 0.086 m (B) 0.094 m (C) 1.24 m (D) 8.56 m (E) none of these
- Which statement about N_2 is false?
(A) It is a gas at room temperature.
(B) The oxidation state is +3 on one N and -3 on the other.
(C) It has one sigma and two pi bonds between the two atoms.
(D) It can combine with H_2 to form NH_3 .
(E) It has two pairs of nonbonding electrons.

11. Which of these statements about benzene is true?
(A) All carbon atoms in benzene are sp^3 hybridized.
(B) Benzene contains only π bonds between C atoms.
(C) The bond order of each C—C bond in benzene is 1.5.
(D) Benzene is an example of a molecule that displays ionic bonding.
(E) All of these statements are false.
12. When electrons in a molecule are not found between a pair of atoms but move throughout the molecule, this is called _____.
(A) ionic bonding (B) covalent bonding
(C) polar covalent bonding (D) delocalization of the electrons
(E) a dipole moment
13. Which one of the following descriptions for microelectrodes is incorrect?
(A) The dimensions of such electrodes are usually smaller than about $20 \mu\text{m}$.
(B) The IR (current \times resistance) drop of microelectrodes is higher than traditional electrodes.
(C) Such electrodes can be used for the study of chemical processes in single cells.
(D) They are also called ultramicroelectrodes or microscopic electrodes.
(E) By using such electrodes, three electrodes system is not necessary.
14. Which one of the following descriptions about GC (gas chromatography) is correct?
(A) In GC, the stationary phase is liquid or solid, the mobile phase is gas.
(B) It can only be applied for gaseous samples.
(C) In order to obtain a complete separation, different gaseous mixtures are purged into the column successively.
(D) GC is not an efficient separation technique.
(E) All of these are correct.
15. Which one of the following detectors is not used for HPLC (high-performance liquid chromatography)?
(A) Absorbance detectors (B) Fluorescence detectors
(C) Electrochemical detectors (D) Flame ionization detectors
(E) Mass spectrometers
16. Which one of the following descriptions about CE (capillary electrophoresis) is incorrect?
(A) Electrophoresis is a separation technique based on the different migration rates of charged species.
(B) It cannot be used to separate proteins and nucleic acids.
(C) Its particular strength is the unique ability to separate charged macromolecules.
(D) Until the appearance of CE, electrophoretic separations were not carried out in columns.
(E) Most of the detectors used for HPLC can be employed for CE.
17. The pH meter is widely used for measuring the H^+ concentrations in the solutions. Which one of the following descriptions for a pH is incorrect?
(A) The sensing material is a special thin glass membrane at the tip of the electrode.
(B) No reference electrode is required for a pH meter.
(C) The real signal obtained from the pH meter is voltage (or difference of potentials).
(D) In basic solutions, the indicator electrode also responds to alkali metal ions.
(E) pH meters can be used to determine the equivalence point of the acid-base titration.
18. Atomic spectrometer is widely applied for the analysis of various elements. Which one of the following is not an atomization method used for most atomic spectrometer?
(A) Flame (B) Inductively coupled plasma (C) Electrothermal oven
(D) Laser (E) Electric spark
19. A method of separation that employs a system with two phases of matter, a mobile phase and a stationary phase, is called _____.
(A) filtration (B) chromatography (C) distillation (D) vaporization (E) homogenization
20. A solution is also called a _____.
(A) homogeneous mixture (B) heterogeneous mixture (C) pure mixture
(D) compound (E) distilled mixture

21. Which one of the following descriptions for the Beer's law is incorrect?
- (A) Beer's law is ordinarily represented as $A = \epsilon bs$.
 (B) For a mixture, the total absorbance at a λ = the sum of individual absorbance if there is no intermolecular interaction.
 (C) Beer's law is more suitable for concentrated solutions.
 (D) Negative deviations are always observed if polychromatic radiations are used.
 (E) The b term in the equation of item (a) means the optical length.
22. Buffer solutions are very important for many analytical applications. Which one of the following descriptions about buffer solutions is incorrect?
- (A) Buffer solutions are generally from conjugate acid/base pairs.
 (B) Buffer solutions can resist to changes of pH when the solutions are diluted or added with strong acids or bases.
 (C) The buffer capacity is the measurement of ability that resists to pH changes.
 (D) The buffer capacity of a solution is determined by the strength of the conjugate acid/base pair.
 (E) The pH of a buffer solution can be determined by $\text{pH} = \text{pK}_a + \log \left(\frac{[\text{base}]}{[\text{acid}]} \right)$.
23. Which one of the following apparatuses is not used for measurement of volume?
- (A) Volumetric (B) Pipet (C) Buret
 (D) Test tube (E) All of these are used for measurement of volume.
24. What is the major product of the following reaction?
- $$\text{CH}_3\text{---}\overset{\text{O}}{\parallel}\text{C---O---CH}_3 \xrightarrow[\text{Et}_2\text{O}]{2 \text{ X } \text{CH}_3\text{MgI}} \xrightarrow{\text{H}_3\text{O}^+}$$
- (A) $\text{H}_3\text{C---}\overset{\text{OH}}{\underset{\text{CH}_3}{\text{C}}}\text{---O---CH}_3$ (B) $\text{CH}_3\text{---}\overset{\text{OCH}_3}{\underset{\text{OH}}{\text{C}}}\text{---O---CH}_3$ (C) $\text{CH}_3\text{---}\overset{\text{O}}{\parallel}\text{C---CH}_3$ (D) $\text{CH}_3\text{---}\overset{\text{CH}_3}{\underset{\text{CH}_3}{\text{C}}}\text{---O---H}$ (E) None of the above
25. Which one of the following molecular formulae can represent a pair of mirror image isomers?
- (A) $\text{H}_2\text{NCH}_2\text{COOH}$ (B) $\text{H}_2\text{NCH}(\text{CH}_3)\text{COOH}$
 (C) $\text{H}_2\text{NCH}_2\text{CH}_2\text{COOH}$ (D) $\text{H}_2\text{NCH}_2\text{COOCH}_3$
 (E) $(\text{CH}_3)_2\text{CHCOOH}$
26. A chain reaction is one that :
- (A) involves a series of steps (B) involves two steps with similar energies of activation
 (C) is initiated by heat (D) requires the addition of an external terminating agent
 (E) involves a reaction in which the propagation steps also produce the product and initiator necessary for another propagation cycle
27. Which statement best describes 1,3-butadiene?
- (A) 1,3-butadiene is less stable than 1,4-pentadiene due to steric crowding.
 (B) 1,3-butadiene is more stable than 1,4-pentadiene because of less steric crowding.
 (C) 1,3-butadiene is less stable than two molecules of 1-butene.
 (D) 1,3-butadiene is more stable than 1,4-pentadiene due to resonance energy.
 (E) 1,3-butadiene's carbon atoms are sp^3 hybridized.
28. Which is the general formula for cyclic hydrocarbons with one double covalent bond between adjacent atoms?
- (A) $\text{C}_n\text{H}_{2n+2}$ (B) C_nH_{2n} (C) $\text{C}_n\text{H}_{2n-2}$ (D) $\text{C}_n\text{H}_{2n-4}$ (E) $\text{C}_n\text{H}_{2n-6}$
29. What is the major product of the following reaction?
- $$\text{H}_3\text{C---}\overset{\text{O}}{\parallel}\text{C---CH}_2\text{CH}_3 \xrightarrow[\text{MeOH}]{\text{NaBH}_4}$$
- (A) (S) 2-butanol (B) (R)2-butanol (C) racemic mixture of 2-butanol
 (D) e.e of (S)-butanol (E) diastereomeric mixture of 2-butanol
30. How many absorptions will the following compound have in its carbon NMR spectrum?
- $$\text{CH}_3\text{CH}_2\text{---}\overset{\text{H}}{\text{C}}=\overset{\text{CH}_3}{\text{C}}\text{---CH}_3$$
- (A) 3 (B) 4 (C) 5 (D) 6 (E) 7

31. The pinacol rearrangement proceeds via _____ intermediate.
 (A) carbanion (B) carbocation (C) radical (D) lone pair (E) neutral

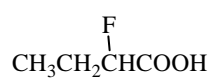
32. Rank the following compounds with respect to increasing acidity (least acidic to most acidic).



1



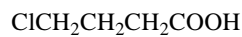
2



3



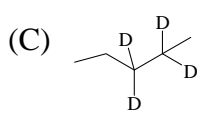
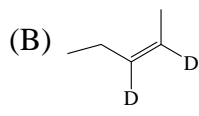
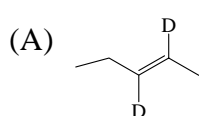
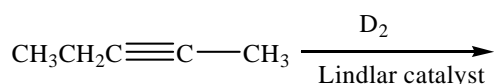
4



5

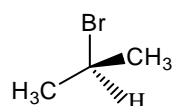
- (A) 3<1<2<5<4 (B) 4<3<1<2<5 (C) 4<3<1<2<5 (D) 5<2<1<3<4 (E) 4<5<2<1<3

33. What is the product of the following reaction:



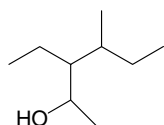
- (D) All of the above (E) Pentane

34. What is the stereochemistry of the following compound:



- (A) R-form (B) S-form (C) not chiral (D) meso compound (E) racemic mixture

35. What is the name of the compound whose line drawing is shown below?



- (A) 3-ethyl-4-methyl-2-hexanol (B) 4-ethyl-3-methyl-5-hexanol
 (C) 3,4-diethyl-2-pentanol (D) 2,3-diethyl-4-pentanol
 (E) 3-iso-butyl-2-pentanol

36. Which of the following statements is **correct**?

- (A) Alkenes have only sp^2 hybridised carbon atoms.
 (B) Alkenes will react with ozone to give carbonyl compounds.
 (C) Amines can react with carboxylic acids to give esters.
 (D) Tertiary alcohols will oxidise to ketones.
 (E) Bromobenzene will undergo an SN_2 substitution reaction

37. Which of the following alkyl bromides will undergo the SN_2 reaction the fastest?

- (A) Bromobenzene (B) Butyl bromide (C) *tert*-Butyl bromide
 (D) *iso*-butyl bromide (E) 1-Bromo-4-nitrobenzene

38. What is the normality of a solution containing 49g of H_3PO_4 in 2,000 mL, of solution?

- (A) 0.25 N (B) 0.50 N (C) 0.75 N (D) 1.00 N (E) 1.50 N

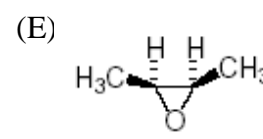
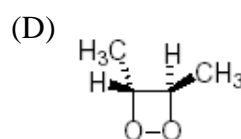
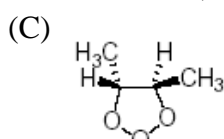
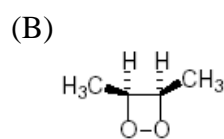
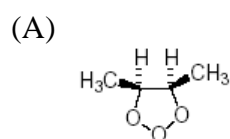
39. The K_a values for HSO_4^- and H_2PO_4^- are 1.2×10^{-2} and 6.3×10^{-8} respectively. Therefore it follows the HSO_4^- is a _____ acid than H_2PO_4^- and SO_4^{2-} is a _____ base than HPO_4^{2-} .

- (A) weaker, weaker (B) stronger, stronger (C) weaker, stronger
 (D) stronger, weaker (E) cannot be predicted

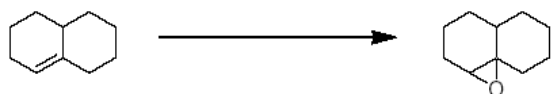
40. Determine the empirical formula of polystyrene which is 92.3% C and 7.7% H. (Atomic weights: C = 12.01, H = 1.008).

- (A) CH_3 (B) CH_2 (C) C_2H (D) C_2H_3 (E) CH

41. Give the intermediate that is formed in the ozonolysis reaction of (*E*)-2-butene.



42. Give the reagent(s) that would best accomplish the following transformation.



- (A) CH_3COOH (B) MnO_2 (C) mCPBA (D) NBS (E) AIBN

43. The acid present in vinegar is _____.

- (A) Ethanol (B) Ethanoic acid (C) Formic acid (D) Benzoic acid (E) Hydrochloric acid

44. Which of the following dissolved in water to form acid rain?

- (A) H_2SO_4 (B) $\text{HCl}(\text{g})$ (C) $\text{NO}_2(\text{g})$ (D) $\text{Cl}_2(\text{g})$ (E) $\text{SO}_3(\text{g})$

45. The compound, 2-methyl-2-propanol, is an isomer of _____.

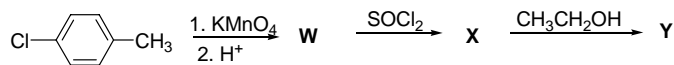
- (A) butane (B) propane (C) butanol (D) propanol (E) methanol

46. What is the name of the following amine?



- (A) Pyridine (B) Pyrrole (C) Piperidine (D) Pyrimidine (E) Pyrrolidine

47. Which structure best fits compound Y produced by the following series of reactions starting with p-chlorotoluene?



- (A) (B) (C) (D) (E)

48. Choose the statement that is true concerning nitrobenzene and electrophilic aromatic substitution.

- (A) Activate the benzene ring at meta-position
 (B) Deactivate the benzene ring at the ortho and para-positions
 (C) meta-Position of benzene ring most deactivated
 (D) Activate the ortho-position only
 (E) Activate the para-position only

49. Which of the following are antiaromatic?

- (A) (B) (C) (D) (E) None of the above

50. In the experiment, which of the following would have been removed by washing the solution with sodium carbonate?

- (A) Phthalic acid (B) Methylbenzoate (C) Aniline
 (D) Nitrobenzene (E) N-Phenylphthalimide

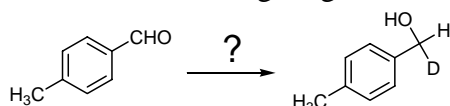
51. For Diels-Alder cycloaddition reactions to take place most rapidly and in highest yield the dienophile must:

- (A) be substituted with electron-withdrawing groups
 (B) be able to adopt an s-trans conformation
 (C) be substituted with electron-donating groups
 (D) be able to adopt an s-cis conformation
 (E) none of the above

52. 2-Chloro-1, 3-butadiene is polymerized to yield an excellent, expensive synthetic rubber with good weather resistance called:

- (A) Chloroprene (B) Isoprene (C) Polystyrene (D) Neoprene (E) none of the above

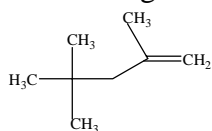
53. Which of the following reagents is best used for conversion show below?



- (A) 1. NaBH_4 , 2. D_3O^+ (B) 1. NaBD_4 , 2. H_3O^+ (C) 1. LiAlH_4 , 2. D_3O^+
 (D) 1. LiAlH_4 , 2. H_3O^+ (E) 1. NaBH_4 , 2. H_3O^+

54. The mass spectra of alcohols often fail to exhibit detectable M peaks but instead show relatively large _____ peaks.
 (A) M+1 (B) M+2 (C) M-15 (D) M-16 (E) M-18

55. The following compound is used as an additive in gasoline to improve its octane value:



Which of the following is a correct IUPAC name for this compound:

- (A) 2,2,4-trimethyl-1-pentene (B) 2,2,4-trimethyl-2-pentene
 (C) 2,2,4-trimethyl-5-pentene (D) 2,4,4-trimethyl-1-pentene
 (E) 2,4,4-trimethyl-2-pentene

56. Which of the following amines will react with cyclopentanone to form an enamine?

- (A) $\text{CH}_3(\text{CH}_2)_3\text{NH}_2$ (B) $(\text{CH}_3)_3\text{N}$ (C) pyridine (D) $(\text{CH}_3)_3\text{CNH}_2$ (E) none of the above

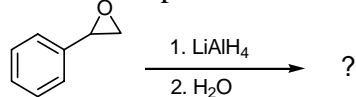
57. Which of the following compounds is a hydrazone?

- (A) (B) (C) (D) (E)

58. Which of the following statements describes the first step in the mechanism of the aldol condensation?

- (A) An alpha hydrogen is abstracted by the base to form an enolate anion.
 (B) A nucleophilic base attacks the carbonyl carbon atom.
 (C) The carbonyl oxygen is protonated by the base ion.
 (D) An alpha hydrogen is abstracted by an acid to form the enolate anion.
 (E) none of above.

59. What is the product from the following reaction?



- (A) (B) (C) (D) (E) none of the above

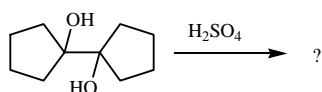
60. Which of the following compounds is hydrolyzed most slowly in aqueous NaOH?

- (A) $\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_3$ (B) $\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}_2$ (C) $\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OCH}_3$ (D) $\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\text{CH}_2\text{Ph}$ (E) $\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{Cl}$

II. Choose one correct answer for the following questions

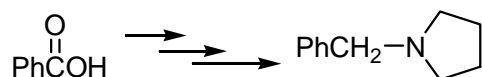
【單選題】每題 2 分，共計 40 分，答錯一題倒扣 0.5 分，倒扣至本大題零分為止，未作答，不給分不扣分。

61. What is the major product of the following reaction?



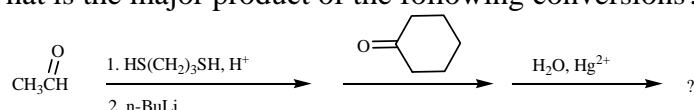
- (A) (B) (C) (D) (E) none of the above.

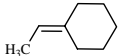
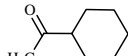
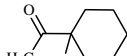
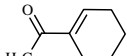
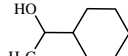
62. Which of the following is the best method for preparing N-benzylpyrrolidine from benzoic acid?



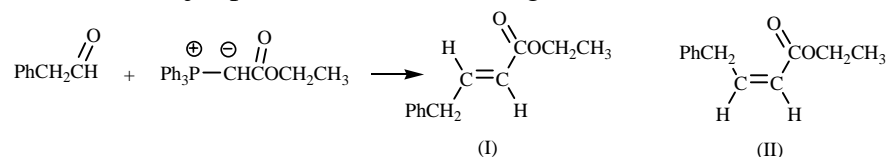
- (A) I). Pyrrolidine; II) SOCl_2 ; III). 1. LAH; 2. H_2O
 (B) I). SOCl_2 ; II). Pyrrolidine; III). 1. LAH; 2. H_2O
 (C) I). 1. LAH; 2. H_2O ; II). SOCl_2 ; III). Pyrrolidine
 (D) I). SOCl_2 ; II). 1. LAH; 2. H_2O ; III). 1. Pyrrolidine
 (E) None of the above

63. What is the major product of the following conversions?



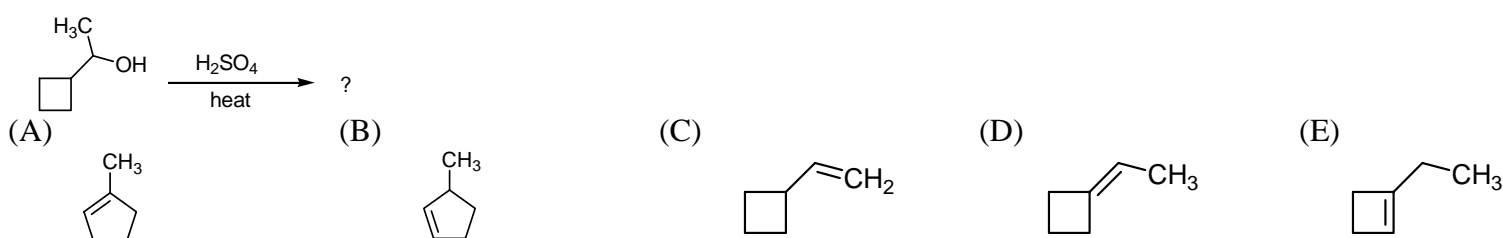
- (A)  (B)  (C)  (D)  (E) 

64. What is the major product of the following reaction?

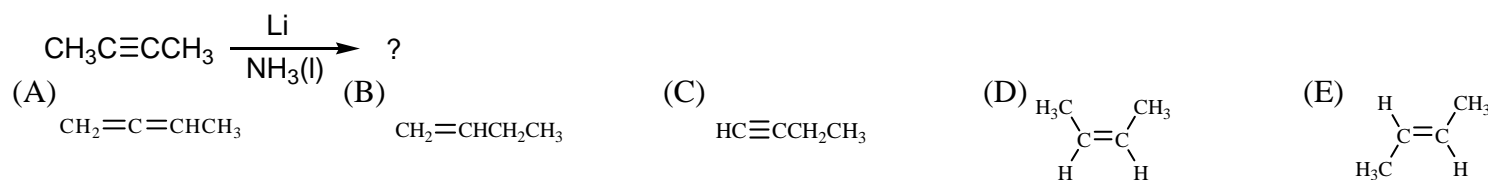


- (A) Only (I) is formed (B) Only (II) is formed
(C) (I) is major product (D) (II) is major product (E) (I):(II) = 50:50

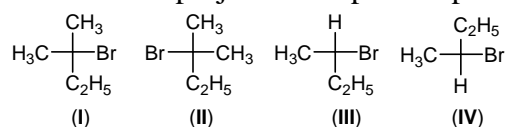
65. What is the product of the following reaction?



66. What is the major product from this reaction?

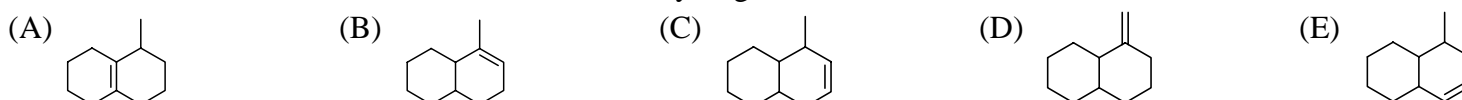


67. Which Fischer projections represent pair of enantiomers?



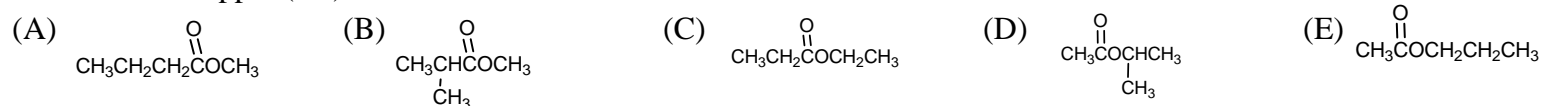
- (A) I and II (B) II and III (C) II and IV (D) III and IV (E) I and IV

68. Which constitutional isomer has the lowest heat of hydrogenation?



69. Which compound would provide the following ¹H-NMR spectrum?

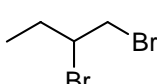
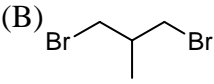
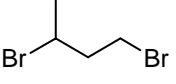
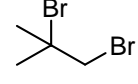
Multiplet at 5.01 ppm (1H)
Singlet at 2.04 ppm (3H)
Doublet at 1.25 ppm (6H)



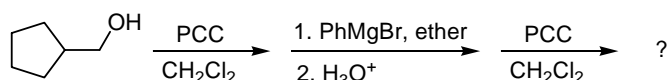
70. An unknown compound, C₄H₈Br₂, gave the following NMR spectrum:

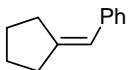
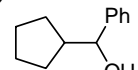
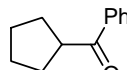
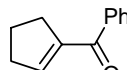
Singlet at 1.97 ppm (6H)
Singlet at 3.89 ppm (2H)

What is the structure of the compound?

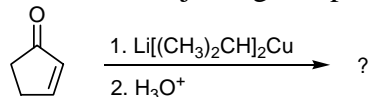
- (A)  (B)  (C)  (D)  (E) none of the above

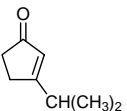
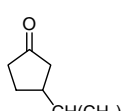
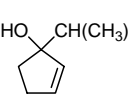
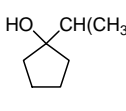
71. What is the major product of the following conversions?



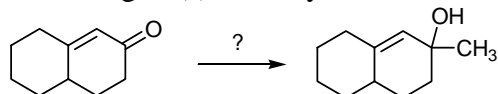
- (A)  (B)  (C)  (D)  (E) none of the above

72. What is the major organic product of the following reaction?



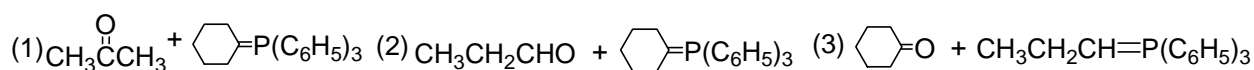
- (A)  (B)  (C)  (D)  (E) none of the above

73. What reagent(s) would you use to accomplish the following conversion?



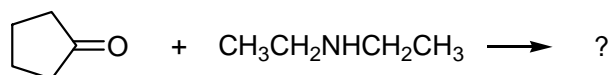
- (A) $\text{CH}_3\text{Br, H}_3\text{O}^+$ (B) $\text{CH}_3\text{MgBr, H}_3\text{O}^+$ (C) $(\text{CH}_3)_2\text{CuLi, H}_3\text{O}^+$
 (D) $\text{CH}_3\text{Br, LiAlH}_4, \text{H}_3\text{O}^+$ (E) $\text{CH}_3\text{MgBr, LiAlH}_4, \text{H}_3\text{O}^+$

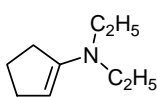
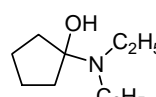
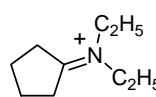
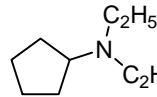
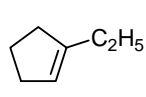
74. What carbonyl compound and what phosphonium ylide are required for the synthesis of the following alkene?




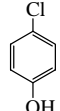
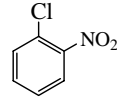
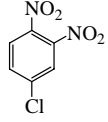
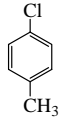
- (A) only (1) (B) only (2) (C) only (3) (D) (2) and (3) (E) (1),(2),and (3).

75. What is the major organic product of the following reaction?

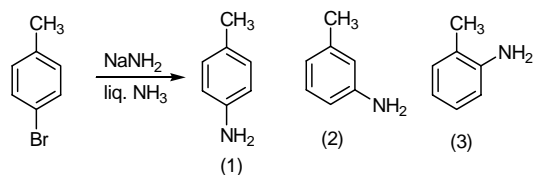


- (A)  (B)  (C)  (D)  (E) 

76. Which of the following is most reactive toward nucleophilic aromatic substitution?

- (A)  (B)  (C)  (D)  (E) 

77. What are the products of the following reaction?

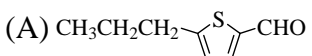
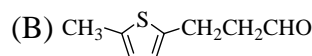
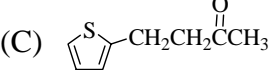
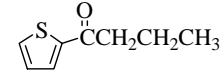


- (A) only (1) (B) only (2) (C) only (3) (D) (1) and (2) (E) (2) and (3)

78. An unknown compound has the formula $\text{C}_8\text{H}_{10}\text{OS}$, and is known to contain a thiophene ring. The proton NMR spectrum of this compound is:

0.98, triplet, 3H; 1.74, multiplet, 2H; 2.80, triplet, 2H; 7.40, multiplet, 1H; 7.55, multiplet, 2H.

What is the structure of this compound?

- (A)  (B)  (C)  (D)  (E) none of the above.

79. Deduce the identity of the compound from the data provide.

$C_5H_8O_4$:

IR (cm^{-1}): 2800-3300 (broad), 2950, 1740

^{13}C NMR (δ , splitting): 17.3 (quartet), 44.3 (singlet), 210.5 (singlet).

(A) $HO_2CC(CH_3)_2CO_2H$.

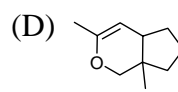
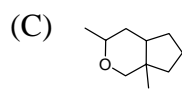
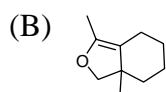
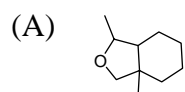
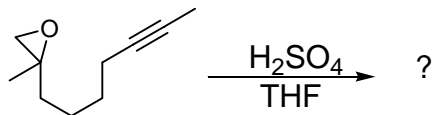
(B) $CH_3O_2CCH_2CO_2CH_3$.

(C) $HO_2CCCH_2CH_2CH_2CO_2H$.

(D) $CH_3O_2CCH_2CH_2CO_2H$.

(E) $CH_3O_2CCO_2CH_2CH_3$.

80. What is the major organic product of the following reaction?



(E) none of the above

高雄醫學大學九十四學年度學士後醫學系招生考試試題

科目:普通物理學

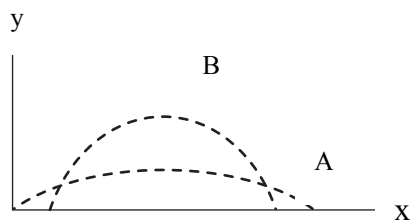
考試時間: 80 分鐘

說明: 一、選擇題用 2B 鉛筆在「答案卡」上作答, 修正時應以橡皮擦擦拭, 切勿使用修正液(帶), 未遵照正確作答方法而致電腦無法判讀者, 考生自行負責。
二、試題及答案卡必須繳回, 不得攜出試場。

【單選題】每題 4 分, 共計 100 分, 答錯一題倒扣 1 分, 倒扣至零分為止, 未作答, 不給分不扣分。

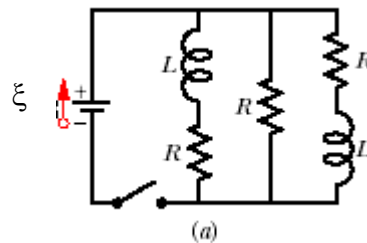
1. Carts A and B have equal masses and travel equal distances D on side-by-side straight frictionless tracks while a constant force F acts on A and a constant force $2F$ acts on B. Both carts start from rest. The velocities v_A and v_B of the bodies at the end of distance D are related by
(A) $v_B = v_A$ (B) $v_B = \sqrt{2}v_A$ (C) $v_A = 2v_B$ (D) $v_A = 4v_B$ (E) $v_B = 2v_A$
2. A solid sphere, spherical shell, solid cylinder and a cylindrical shell all have the same mass m and radius R . If they are all released from rest at the same elevation and roll without slipping, which reaches the bottom of an inclined plane first?
(A) solid sphere (B) spherical shell (C) solid cylinder
(D) cylindrical shell (E) all take the same time
3. Cubical blocks of mass m and side ℓ are piled up in a vertical column. The total gravitational potential energy of a column of three blocks is
(A) $2.5 mg\ell$ (B) $3 mg\ell$ (C) $4.5 mg\ell$ (D) $6 mg\ell$ (E) $9 mg\ell$
4. An ideal gas is allowed to undergo a free expansion. If its initial volume is V_1 and its final volume is V_2 , the change in entropy is
(A) $nR \ln(V_2/V_1)$ (B) $nRT \ln(V_2/V_1)$ (C) $nk \ln(V_2/V_1)$ (D) 0 (E) nRV_2/V_1
5. A parallel plate capacitor of capacitance C_0 has plates of area A with separation d between them. When it is connected to a battery of voltage V_0 , it has charge of magnitude Q_0 on its plates. While it is connected to the battery, the space between the plates is filled with a material of dielectric constant 3. After the dielectric is added, the magnitude of the charge on the plates and the potential difference between them are
(A) $3Q_0, 3V_0$ (B) $\frac{1}{3}Q_0, \frac{1}{3}V_0$ (C) $Q_0, \frac{1}{3}V_0$ (D) Q_0, V_0 (E) $3Q_0, V_0$
6. To decrease the intensity of the sound you are hearing from your speaker system by a factor of 36, you can
(A) reduce the amplitude by a factor of 18 and increase your distance from the speaker by a factor of 2.
(B) reduce the amplitude by a factor of 4 and increase your distance from the speaker by a factor of 3.
(C) reduce the amplitude by a factor of 2 and increase your distance from the speaker by a factor of 3.
(D) reduce the amplitude by a factor of 3 and increase your distance from the speaker by a factor of 12.
(E) reduce the amplitude by a factor of 3 and increase your distance from the speaker by a factor of 4.
7. If an $R = 1 \text{ k}\Omega$ resistor, a $C = 1 \mu\text{F}$ capacitor, and an $L = 0.2 \text{ H}$ inductor are connected in series with a $V = 150 \sin(377t)$ volts source, what is the maximum current delivered by the source?
(A) 0.007 A (B) 27 mA (C) 54 mA (D) 0.308 mA (E) 0.34 A
8. In which process will the internal energy of the system **NOT** change?
(A) An adiabatic expansion of an ideal gas.
(B) The evaporation of a quantity of a liquid at its boiling point.
(C) An isothermal compression of an ideal gas.
(D) An isobaric expansion of an ideal gas.
(E) The freezing of a quantity of liquid at its melting point.

9. Two balls, projected at different times so they don't collide, have trajectories A and B, as shown below.



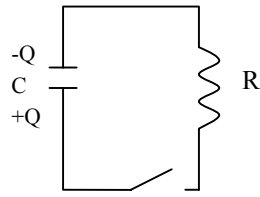
Which statement is correct?

- (A) v_{0B} must be greater than v_{0A} .
 - (B) Ball B is in the air for a longer time than ball A.
 - (C) Ball A is in the air for a longer time than ball B.
 - (D) Ball B has a greater acceleration than ball A.
 - (E) Ball A has a greater acceleration than ball B.
10. A binary star system in the constellation Orion has an angular separation between the two stars of 1.2×10^{-5} radians. If $\lambda = 5 \times 10^{-7}$ m, what is the smallest aperture (diameter) telescope that may be used to resolve the two stars?
 (A) 10 cm (B) 5 cm (C) 50 cm (D) 1 m (E) 4 m
11. We wish to coat flat glass ($n=1.5$) with a transparent material ($n=1.25$) so that reflection of light at wavelength 600 nm is eliminated by interference. What minimum thickness can the coating have to do this?
 (A) 30 nm (B) 100 nm (C) 120 nm (D) 400 nm (E) 480 nm
12. The figure shows a circuit that contains three identical resistors with resistance $R=9.0 \Omega$, two identical inductors with inductance $L=4.0$ mH, and an ideal battery with emf $\xi=36$ V. I_A is the current just after the switch is closed, and I_B is the current through the battery long after the switch has been closed. What is the current ratio I_A/I_B ?
 (A) 1/3 (B) 1/2 (C) 1 (D) 2 (E) 3



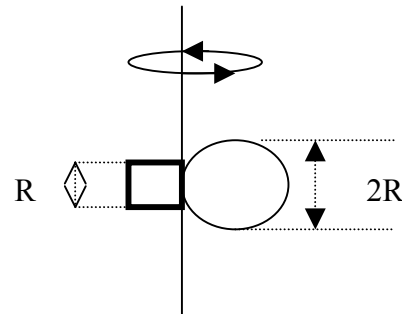
13. A long cylindrical wire (radius = 2.0 cm) carries a current of 40 A that is uniformly distributed over a cross section of the wire. What is the magnitude of the magnetic field at a point which is 1.5 cm from the axis of the wire?
 (A) 0.53 mT (B) 28 mT (C) 0.30 mT (D) 40 mT (E) 1.9 mT
14. The average position, or expectation value, of a particle whose wave function $\psi(x)$ depends only on the value of x , is given by $\langle x \rangle = ?$
 (A) $\int_{-\infty}^{+\infty} \sqrt{x} \psi(x) dx$ (B) $\int_{-\infty}^{+\infty} x \psi(x) dx$ (C) $\int_{-\infty}^{+\infty} (x/2) \psi^2(x) dx$ (D) $\int_{-\infty}^{+\infty} (x^2/2) \psi(x) dx$ (E) $\int_{-\infty}^{+\infty} \psi^*(x) x \psi(x) dx$
15. A company that produces pulsed gas heaters claims their efficiency is approximately 90%. If an engine operates between 250 °C and 25 °C, what is its maximum thermodynamic efficiency?
 (A) 43% (B) 56% (C) 65% (D) 83% (E) 90%
16. A quantum particle
 (A) can be localized in space.
 (B) can be represented by an infinitely long wave having a single frequency.
 (C) can be represented by a wave packet.
 (D) travels at the phase speed of the infinitely long wave having the highest frequency.
 (E) has the highest probability of being present in those regions of space where its component waves interfere destructively.
17. An electron is in a state with $l = 3$. What is the smallest value of the semiclassical angle θ between the direction of \vec{L}_z and \vec{L} ?
 (A) 0° (B) 30° (C) 60° (D) $\cos^{-1}(1/3)$ (E) 90°

18. A charged capacitor connected to a resistor and a switch, which is open for $t < 0$. After the switch is closed at $t = 0$, the capacitor C is discharged through the resistor R . The energy stored in the capacitor decreases with time as it discharges. After how many time constants is this stored energy one eighth of its initial value? ($\ln 2 = 0.693$)



- (A) $0.347 RC$ (B) $0.693 RC$ (C) $1.040 RC$ (D) $1.386 RC$ (E) $2.079 RC$
19. Water enters a house through a pipe with an inside diameter of 2.0 cm at an absolute pressure of 4.0×10^5 Pa. A 1.0 cm-diameter pipe leads to the second-floor bathroom 5.0 m above. When the flow speed at the inlet pipe is 1.5 m/s, find the water pressure in the bathroom. ($\rho_{\text{water}} = 1000 \text{ kg/m}^3$)
- (A) $0.17 \times 10^5 \text{ Pa}$ (B) $0.32 \times 10^5 \text{ Pa}$ (C) $0.49 \times 10^5 \text{ Pa}$ (D) $0.66 \times 10^5 \text{ Pa}$ (E) $3.3 \times 10^5 \text{ Pa}$
20. A cart with mass 450 g moving on a frictionless linear air track at an initial speed of 1.5 m/s undergoes an elastic collision with an initially stationary cart of unknown mass. After the collision, the first cart continues in its original direction at 0.70 m/s. What is the mass of the second cart?
- (A) 0.16 kg (B) 0.47 kg (C) 1.24 kg (D) 2.14 kg (E) 3.40 kg
21. The figure shows a rigid structure consisting of a circular hoop of radius R and mass m , and a square made of four thin bars, each of length R and mass m . The rigid structure rotates at a constant speed about a vertical axis, with a period of rotation of 2.5 s. Assuming $R = 0.5 \text{ m}$ and $m = 2.0 \text{ kg}$, calculate the structure's rotational inertial about the axis of rotation.

$$\left(\begin{array}{l} I_{\text{com}} = \frac{1}{2} mR^2 \text{ (for hoop)} \\ I_{\text{com}} = \frac{1}{12} mL^2 \\ \text{(for thin rod about axis through center} \\ \text{perpendicular to length } L) \end{array} \right)$$



- (A) $\frac{7}{12} mR^2$ (B) $\frac{5}{6} mR^2$ (C) $\frac{7}{6} mR^2$ (D) $\frac{19}{6} mR^2$ (E) $\frac{25}{6} mR^2$
22. What is the de Broglie wavelength of an electron with a kinetic energy of $1.822 \times 10^{-16} \text{ J}$?
- ($m_e = 9.11 \times 10^{-31} \text{ kg}$, $h = 6.63 \times 10^{-34} \text{ J}\cdot\text{s}$)
- (A) 0.3639 pm (B) 3.639 pm (C) 36.39 pm (D) 363.9 pm (E) 3639.0 pm
23. An LED is constructed from a p-n junction based on a certain Ga-As-P semiconducting material whose energy gap is 1.9 eV. What is the wavelength of the emitted light? ($h = 6.63 \times 10^{-34} \text{ J}\cdot\text{s}$, $c = 3.00 \times 10^8 \text{ m/s}$)
- (A) 10.47 nm (B) 16.75 nm (C) 37.79 nm (D) 113.37 nm (E) 654.28 nm
24. An electron moves through a uniform magnetic field given by $\vec{B} = B_x \vec{i} + (4.0 B_x) \vec{j}$. At a particular instant, the electron has velocity $\vec{v} = (2.0 \vec{i} + 4.0 \vec{j}) \text{ m/s}$ and the magnetic force acting on it is $(6.4 \times 10^{-19} \text{ N}) \vec{k}$. Find B_x .
- (A) $-1.6 \times 10^{-19} \text{ T}$ (B) $-3.2 \times 10^{-19} \text{ T}$ (C) -0.22 T (D) -1.0 T (E) -2.0 T
25. The potential energy of a diatomic molecule (a two-atom system like H_2 or O_2) is given by $U = \frac{A}{r^{12}} - \frac{B}{r^6}$ where r is the separation of the two atoms of the molecule and A and B are positive constants. This potential energy is associated with the force that binds the two atoms together. The force that one atom exerts on the other is:
- (A) $\frac{12A}{r^{13}} - \frac{6B}{r^7}$ (B) $\frac{11A}{r^{11}} - \frac{5B}{r^5}$ (C) $\frac{13A}{r^{13}} - \frac{7B}{r^7}$ (D) $\frac{A}{r^{13}} - \frac{B}{r^7}$ (E) $\frac{12A}{r^{12}} - \frac{7B}{r^7}$

微積分

題號	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
答案	B	A	B	A	A	B	B	B	A	A	D	C	E	B	B	D	B	D	C	B	C	E	C	E	A	C

化學

題號	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
答案	D	E	D	B	A	B	D	A	D	B	C	D	B	A	D	B	B	D	B	A	C	D	D	D	B
題號	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
答案	E	D	C	C	D	B	E	B	C	A	B	B	C	D	E	C	C	B	E	C	C	B	B	B	A
題號	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
答案	A	D	B	E	D	E	D	A	B	B	A	B	C	A	A	E	D	A	D	D	C	B	B	D	A
題號	76	77	78	79	80																				
答案	D	D	D	A	B																				

普通生物學

題號	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
答案	D	A	E	E	A	B	E	D	C	E	C	E	B	B	C	C	B	B	B	C	B	B	B	D	E
題號	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
答案	C	D	A	A	E	D	D	B	A	A	C	C	A	E	B	D	A	E	B	A	B	C	C	B	B
題號	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65										
答案	D	D	E	E	C	C	B	B	E	D	E	D	E	A	B										

普通物理學

題號	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
答案	B	A	C	A	E	C	C	C	B	B	C	A	C	E	A	C	B	C	E	A	D	C	E	D	A

