

多選題：

1. 下列的敘述中，哪些為真？ (20%)
 - (A) 程式相同，被處理的輸入資料不同，則輸出必為不同。
 - (B) 輸入資料相同，程式不同，則輸出有可能相同。
 - (C) 輸入資料相同，程式相同，則輸出有可能不同。
 - (D) 馮紐曼(von Neumann)模型與早期電腦架構不同的地方是將資料儲存在記憶體裡面的概念。
 - (E) 馮紐曼模型硬體分為四個子系統：記憶體、算數邏輯、控制及輸入/輸出。
2. 下列的敘述中，哪些為真？ (28%)
 - (A) NOT、AND、OR 和 XOR 為四基本運算子。每個運算子並不能由其他運算子的邏輯運算所獲得。
 - (B) 要將樣式 10100110 第二個位元設定(set)，需使用 AND 運算子，搭配遮罩為 0 的位元。
 - (C) 要將樣式 10100110 第三個位元清除(unset)，需使用 OR 運算子，搭配遮罩為 1 的位元。
 - (D) 要將樣式 10100110 第四個位元反轉，需使用 XOR 運算子，搭配遮罩為 0 的位元。
 - (E) $x \text{ XOR } y$ 等於 $[x \text{ AND } (\text{NOT } y)] \text{ OR } [(\text{NOT } x) \text{ AND } y]$
 - (F) 使用算數右移運算於位元樣式 $(10011001)_2 = (-103)_{10}$ ，則結果為 -51。
 - (G) 使用一次算數右移運算於位元樣式 $(10011001)_2$ ，則結果為 $(01001100)_2$ 。
3. 下列的敘述中，哪些為真？ (20%)
 - (A) 演算法除了循序(sequence)、決定(decision)與重複(repetition)三種結構之外，還有其他結構。
 - (B) 演算法較正式的定義為由若干步驟所組成，其中每個步驟間有其先後順序且動作明確，但不需在有限時間內得到結果。
 - (C) 循序搜尋法(sequential search)通常用在尚未排序的串列中。一般而言，這個方法僅用在串列規模很小或不常進行搜尋的串列中。
 - (D) 對於二元搜尋演算法，倘若目標元素不在串列中，可以由 last 值小於 first 值得知。
 - (E) 下式為階層的遞迴式定義：

$$\text{Factorial } (n) = \begin{cases} 1 & \text{if } n = 0 \\ n \times (n-1) \times (n-2) \cdots 3 \times 2 \times 1 & \text{if } n > 0 \end{cases}$$

4. 下列的敘述中，哪些為真？ (10%)

(A) 以列為主儲存(row-major storage)，則下圖第七個元素為 D。

	[1]	[2]	[3]	[4]
[1]	"A"	"B"	"C"	"D"
[2]	"E"	"F"	"G"	"H"

(B) 陣列比較適合用在插入和刪除的數量不多，但是搜尋與取出的行為比較多的狀況。

(C) 記錄(結構)中的元素可以是相同或是不同的資料型態，但是記錄中所有的元素必須是相關的。

(D) 陣列元素是一個接著一個地被存放在記憶體中，兩兩之間並無空隙；鏈結串列節點的儲存，兩兩之間是可以有空隙的。

(E) 鏈結串列在插入或刪除比陣列容易多了。但鏈結串列的節點必須有一個額外的欄位，也就是記憶體中下一個節點的位址。

5. 下列的敘述中，哪些為真？ (10%)

(A) 抽象的概念是指：你知道資料型態能夠做什麼且它是如何辦到是被隱藏起來的。

(B) 堆疊(stack)常見的應用是在一個資料的快速生產者和緩慢消費者之間，用來調整與建立一個平衡。

(C) 反轉資料與配對資料時，需應用佇列(queue)來達成。

Multiple Choice Questions (30%, 3% per question)

1. Which of the following of Mintzberg's 10 specific managerial roles is best described as building relationships with subordinates and communicating with, motivating and coaching them?
A. Figurehead B. Leader C. Entrepreneur D. None of the given answers
2. As you consider the factors of production, which of the following did management theorist, Peter Drucker believe to be one of the most important contributing factors to increasing the nation's wealth?
A. land B. labor C. knowledge D. capital
3. What makes the position of a project manager unique is that these managers have:
A. responsibility for entire functional areas of the firm.
B. responsibility over multiple specialties.
C. joint responsibility with other managers over certain individuals.
D. hardly any responsibilities at all other than that of orchestrator for an entrepreneur's innovations.
4. A(n) _____ skill precisely refers to the ability to work well in cooperation with other people.
A. Conceptual B. Technical C. Emotional D. Human E. Analytical
5. Which of the following best describes social capital?
A. It is a unique form of ethical entrepreneurship that seeks novel ways to solve pressing social problems.
B. It is the ability to manage ourselves and our relationships effectively.
C. It is the capacity of creating positive relationships with people who can help advance agendas.
D. It is the capacity to get things done with the support and help of others.
E. It is the ability to think analytically to diagnose and solve complex problems.
6. Which of these is a subfield of the classical management perspective that emphasized scientifically determined changes in management practices as the solution to improving labor productivity?
A. The human relations movement B. The behavioral sciences approach C. The TQM approach
D. The quantitative management approach E. The scientific management movement
7. _____ is the worldwide interdependence of resource flows, product markets, and business competition.
A. Collectivism B. Globalization C. Nationalization D. Diversification E. Orientalism
8. Which of the following government policies would be least likely to encourage entrepreneurship?
A. Passage of laws that enable businesspeople to write enforceable contracts.
B. Establishment of a currency that is tradable in world markets.
C. Establishment of strict regulations specifying exactly how products should be made to ensure safety and affordability.
D. Passage of laws that eliminate corruption in government and business.

9. Middle managers will most likely have to:
- A. facilitate a bottom-up planning approach to supervising
 - B. manage the performance of entry-level employees
 - C. implement the changes generated by top managers
 - D. develop employees' commitment to and ownership of the company's performance
 - E. monitor long-term environmental trends
10. There have been several studies of managers who fail (derailers) and managers who succeed in climbing the organizational hierarchy (arrivers). Which of the following statements describes one of the facts learned from these studies?
- A. Arrivers differ significantly from derailers.
 - B. Arrivers have no weaknesses.
 - C. Arrivers and derailers both possess two or more fatal flaws regarding how they manage people.
 - D. The number one mistake of derailers was that they were unable to think strategically.
 - E. Arrivers are sensitive to the feelings of others.

申論題 (70%)

回答時不用抄題，但請標明題號及依題號順序回答，請注意回答內容之深度、廣度及正確性。

- 一、請列舉二個(各 24%)對於醫療產業最有意義的管理理論(Theory)或實務(Practice)，個別說明其理論/實務內容(12%)，以及對於醫療產業應如何應用及有何管理意義(12%)。
- 二、部份醫療機構屬於非營利組織。非營利組織(Non-profit Organization)的管理和一般企業的經營管理有何不同之處？請就醫療產業之特性進行討論。(22%)

一、 名詞解釋題 30% (與醫療資訊管理或醫療品質管理相關的名詞，共 5 小題，每小題 6 分，不要只有翻譯，請盡量詳細解釋。)

1. FMEA
2. RCA
3. JCAHO
4. PACS
5. QCC

二、 申論題 70% (共 2 小題，請盡量詳細作答)

1. 何謂遠距健康照護(Tele-health care)?(10%)請舉實務案例說明(10%)，在實務推動上有什麼困難需要克服?(10%)
2. 我國全民健康保險制度中主要有三方當事人發生關係，包括醫療消費者(healthcare consumers)、第三付費者(the third-party payer)和醫療提供者(healthcare providers)。請以『簡圖』說明三者的關係(圖形標示 10%，兩兩關係說明，每一組 10%，小計 30%，本小題共計 40%)

應考須知：如有需要請參考附屬之統計表

1. A magazine states the following hypotheses about the mean age of its subscribers.

$$H_0: \mu = 28$$

$$H_a: \mu \neq 28$$

- (a). What would it mean to make a Type II error in this situation?

- (b). The population standard deviation is assumed known at $\sigma = 6$ years and the sample size is 100. With $\alpha = 0.05$, what is the probability of accepting H_0 for μ equal to 26, 27, 29, and 30

- (c). What is the power at $\mu = 26$? 20%

2. The weekly demand for a product is believed to be normally distributed. Use a goodness of fit test and the following data to test this assumption. Use $\alpha = 0.10$. The sample mean is 24.5 and the sample standard deviation is 3. 20%

18, 20, 22, 27, 22

25, 22, 27, 25, 24

26, 23, 20, 24, 26

27, 25, 19, 21, 25

26, 25, 31, 29, 25

25, 28, 26, 28, 24

3. In a study devoted to stockholder attitude toward its community relations programs, a large national manufacturer takes a random sample of 370 of its stockholders, classifies their holdings as either small, medium-sized, or large, and asks each person to rate the company programs as either good, fair, or poor. The following are the results:

	Small	Medium	Large
Good	35	50	20
Fair	60	55	35
Poor	45	55	15

At the 0.01 level of significance, is there a relationship between the size of stockholders' holdings and their attitude toward the company programs? 15%

4. Calculate expected value $(E[X])$ if X is Poisson random variable with parameter λ and $(E[X])$ if X is binomially distributed with parameter n and p . 20%

5. The following are the numbers of miles per gallon which a test driver got with

four tanks for each of the five brands of gasoline. Test, at the 0.01 level of significance, the null hypothesis that the five brands of gasoline yield the same average mileage.

Brand A: 27, 21, 26, 22

Brand B: 24, 29, 27, 28

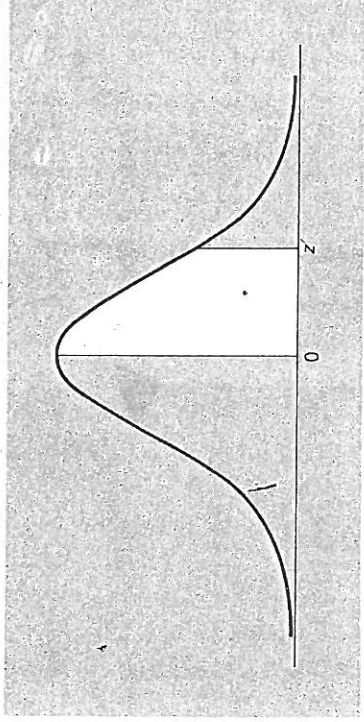
Brand C: 27, 27, 30, 32

Brand D: 24, 21, 24, 23

Brand E: 25, 20, 22, 21

6. Among a department store's 16 delivery trucks, five have worn brakes. If eight trucks are randomly picked for inspection, what is the probability that this sample will include at least three trucks with worn brakes?

10%

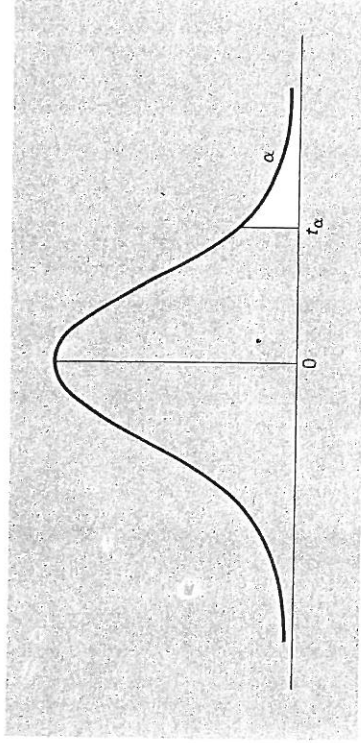


The entries in Table I are the probabilities that a random variable having the standard normal distribution will take on a value between 0 and z ; they are given by the area of the white region under the curve in the figure shown above.

TABLE I Normal-curve Areas

z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990

Also, for $z = 4.0$, 5.0 , and 6.0 , the areas are 0.49997 , 0.4999997 , and 0.499999999 .

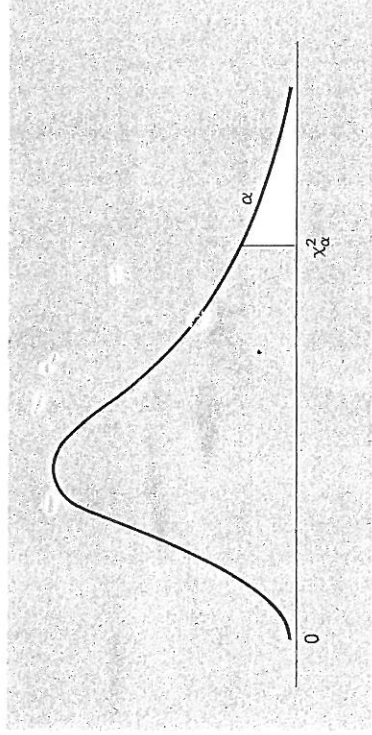


The entries in Table II are values for which the area to their right under the t distribution with given degrees of freedom (the white area in the figure shown above) is equal to α .

TABLE II Values of t^\dagger

$d.f.$	$t_{.100}$	$t_{.050}$	$t_{.025}$	$t_{.010}$	$t_{.005}$	$d.f.$
1	3.078	6.314	12.706	31.821	63.657	1
2	1.886	2.920	4.303	6.965	9.925	2
3	1.638	2.353	3.182	4.541	5.841	3
4	1.533	2.132	2.776	3.747	4.604	4
5	1.476	2.015	2.571	3.365	4.032	5
6	1.440	1.943	2.447	3.143	3.707	6
7	1.415	1.895	2.365	2.998	3.499	7
8	1.397	1.860	2.306	2.896	3.355	8
9	1.383	1.833	2.262	2.821	3.250	9
10	1.372	1.812	2.228	2.764	3.169	10
11	1.363	1.796	2.201	2.718	3.106	11
12	1.356	1.782	2.179	2.681	3.055	12
13	1.350	1.771	2.160	2.650	3.012	13
14	1.345	1.761	2.145	2.624	2.977	14
15	1.341	1.753	2.131	2.602	2.947	15
16	1.337	1.746	2.120	2.583	2.921	16
17	1.333	1.740	2.110	2.567	2.898	17
18	1.330	1.734	2.101	2.552	2.878	18
19	1.328	1.729	2.093	2.539	2.861	19
20	1.325	1.725	2.086	2.528	2.845	20
21	1.323	1.721	2.080	2.518	2.831	21
22	1.321	1.717	2.074	2.508	2.819	22
23	1.319	1.714	2.069	2.500	2.807	23
24	1.318	1.711	2.064	2.492	2.797	24
25	1.316	1.708	2.060	2.485	2.787	25
26	1.315	1.706	2.056	2.479	2.779	26
27	1.314	1.703	2.052	2.473	2.771	27
28	1.313	1.701	2.048	2.467	2.763	28
29	1.311	1.699	2.045	2.462	2.756	29
inf.	1.282	1.645	1.960	2.326	2.576	inf.

[†]Abridged by permission of Macmillan Publishing Co., Inc. from STATISTICAL METHODS FOR RESEARCH WORKERS, 14th Edition, by R. A. Fisher. Copyright © 1970 University of Adelaide.

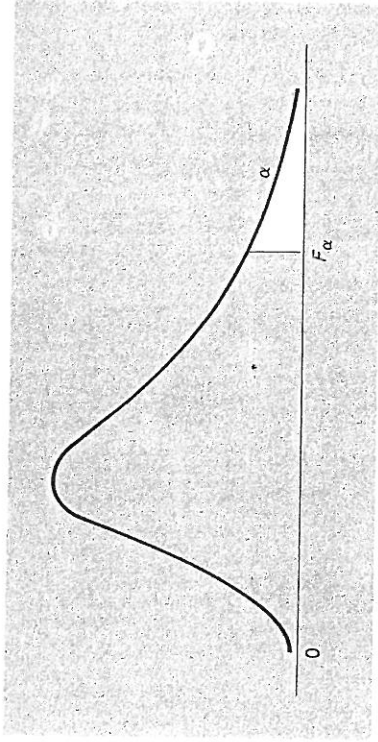


The entries in Table III are values for which the area to their right under the chi-square distribution with given degrees of freedom (the white area in the figure shown above) is equal to α .

TABLE III Values of χ^2 †

d.f.	$\chi^2_{.995}$	$\chi^2_{.99}$	$\chi^2_{.975}$	$\chi^2_{.95}$	$\chi^2_{.9}$	$\chi^2_{.8}$	$\chi^2_{.75}$	$\chi^2_{.7}$	$\chi^2_{.6}$	$\chi^2_{.5}$	$\chi^2_{.4}$	$\chi^2_{.3}$	$\chi^2_{.2}$	$\chi^2_{.1}$	$\chi^2_{.05}$	$\chi^2_{.025}$	$\chi^2_{.01}$	$\chi^2_{.005}$	d.f.
1	.0000393	.000157	.000982	.00393	.00841	.0135	.0175	.0216	.0259	.0308	.0358	.0408	.0458	.0509	.0560	.0611	.0663	.0715	1
2	.0100	.0201	.0506	.103	.1549	.2009	.2446	.2859	.3247	.3619	.3976	.4319	.4648	.4963	.5264	.5551	.5827	.6093	2
3	.0717	.115	.216	.352	.4548	.5493	.6356	.7127	.7808	.8399	.8907	.9332	.9678	.1000	.1020	.1039	.1057	.1075	3
4	.207	.297	.484	.711	.9348	1.121	1.270	1.386	1.476	1.546	1.601	1.649	1.691	1.728	1.761	1.790	1.815	1.838	4
5	.412	.554	.831	1.145	1.357	1.509	1.626	1.711	1.771	1.818	1.856	1.887	1.913	1.936	1.956	1.973	1.988	2.001	5
6	.676	.872	1.237	1.635	1.903	2.107	2.264	2.381	2.466	2.531	2.580	2.617	2.645	2.665	2.681	2.694	2.706	2.717	6
7	.989	1.239	1.690	2.167	2.445	2.669	2.847	2.981	3.081	3.157	3.215	3.258	3.288	3.308	3.321	3.331	3.340	3.348	7
8	1.344	1.646	2.180	2.733	3.015	3.259	3.464	3.631	3.761	3.859	3.929	3.977	4.009	4.027	4.041	4.051	4.059	4.066	8
9	1.735	2.088	2.700	3.325	3.619	3.881	4.114	4.311	4.461	4.571	4.645	4.690	4.717	4.734	4.747	4.757	4.765	4.771	9
10	2.156	2.558	3.247	3.940	4.303	4.591	4.846	5.064	5.244	5.381	5.481	5.547	5.591	5.617	5.634	5.646	5.655	5.662	10
11	2.603	3.053	3.816	4.575	4.952	5.259	5.526	5.754	5.944	6.091	6.201	6.277	6.321	6.347	6.364	6.376	6.384	6.390	11
12	3.074	3.571	4.404	5.226	5.617	5.939	6.181	6.381	6.541	6.671	6.771	6.837	6.871	6.888	6.899	6.906	6.911	6.915	12
13	3.565	4.107	5.009	5.892	6.292	6.626	6.881	7.081	7.241	7.371	7.471	7.537	7.571	7.588	7.599	7.606	7.611	7.615	13
14	4.075	4.660	5.629	6.571	6.971	7.296	7.551	7.751	7.911	8.041	8.141	8.207	8.241	8.258	8.269	8.276	8.281	8.285	14
15	4.601	5.229	6.262	7.261	7.661	7.986	8.241	8.441	8.601	8.731	8.831	8.897	8.931	8.948	8.959	8.966	8.971	8.975	15
16	5.142	5.812	6.908	7.962	8.362	8.687	8.941	9.141	9.301	9.431	9.531	9.597	9.631	9.648	9.659	9.666	9.671	9.675	16
17	5.697	6.408	7.564	8.672	9.072	9.397	9.651	9.851	10.011	10.141	10.241	10.307	10.341	10.358	10.369	10.376	10.381	10.385	17
18	6.265	7.015	8.231	9.390	9.790	10.115	10.369	10.569	10.729	10.859	10.959	11.025	11.059	11.076	11.087	11.094	11.099	11.103	18
19	6.844	7.633	8.907	10.117	10.517	10.842	11.096	11.296	11.456	11.586	11.686	11.752	11.786	11.803	11.814	11.821	11.826	11.829	19
20	7.434	8.260	9.591	10.851	11.251	11.576	11.830	12.030	12.190	12.320	12.420	12.486	12.520	12.537	12.548	12.555	12.560	12.563	20
21	8.034	8.897	10.283	11.591	11.991	12.316	12.570	12.770	12.930	13.060	13.160	13.226	13.260	13.277	13.288	13.295	13.299	13.302	21
22	8.643	9.542	10.982	12.338	12.738	13.063	13.317	13.517	13.677	13.807	13.907	13.973	14.007	14.024	14.035	14.042	14.046	14.049	22
23	9.260	10.196	11.689	13.091	13.491	13.816	14.070	14.270	14.430	14.560	14.660	14.726	14.760	14.777	14.788	14.795	14.799	14.802	23
24	9.886	10.856	12.401	13.848	14.248	14.573	14.827	15.027	15.187	15.317	15.417	15.483	15.517	15.534	15.545	15.552	15.556	15.559	24
25	10.520	11.524	13.120	14.611	15.011	15.336	15.590	15.790	15.950	16.080	16.180	16.246	16.280	16.297	16.308	16.315	16.319	16.322	25
26	11.160	12.198	13.844	15.379	15.779	16.104	16.358	16.558	16.718	16.848	16.948	17.014	17.048	17.065	17.076	17.083	17.087	17.089	26
27	11.808	12.879	14.573	16.151	16.551	16.876	17.130	17.330	17.490	17.620	17.720	17.786	17.820	17.837	17.848	17.855	17.859	17.862	27
28	12.461	13.565	15.308	16.928	17.328	17.653	17.907	18.107	18.267	18.397	18.497	18.563	18.597	18.614	18.625	18.632	18.636	18.639	28
29	13.121	14.256	16.047	17.708	18.108	18.433	18.687	18.887	19.047	19.177	19.277	19.343	19.377	19.394	19.405	19.412	19.416	19.419	29
30	13.787	14.953	16.791	18.493	18.893	19.218	19.472	19.672	19.832	19.962	20.062	20.128	20.162	20.179	20.189	20.196	20.200	20.202	30

†Based on Table 8 of *Biometrika Tables for Statisticians*, Vol. I (Cambridge: Cambridge University Press, 1954) by permission of the *Biometrika* trustees.



The entries in Table IV are values for which the area to their right under the F distribution with given degrees of freedom (the white area in the figure shown above) is equal to α .

TABLE IV Values of $F_{0.01}^{\dagger}$

		Degrees of freedom for numerator																			Degrees of freedom for denominator																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
1	2	4.052	5.000	5.403	5.625	5.764	5.859	5.928	5.982	6.023	6.056	6.106	6.157	6.209	6.235	6.261	6.287	6.313	6.339	6.366	98.5	99.0	99.2	99.2	99.3	99.4	99.4	99.4	99.4	99.4	99.4	99.4	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5	99.5

[†]This table is reproduced from M. Merrington and C. M. Thompson, "Tables of percentage points of the inverted beta (F) distribution," *Biometrika*, Vol. 33 (1943), by permission of the *Biometrika* trustees.

作答說明：本測驗共四大部分，共 50 題，每題配分皆為 2 分。本測驗試題皆為單一選擇題，請選出一個正確或最適當的答案，答錯不倒扣。答案需依題號順序清楚填答在答案卷。考完後需將「答案卷」及「試題卷」一併繳回。

Part 1: Vocabulary (40%, 每題 2 分)

1. We can make simpler ways to help stop global warming or at least reduce its effects. At home or in the office, choose lighting fixtures and appliances that are eco-friendly, meaning that they don't ____ too much energy and generate too much heat.
(A) conserve (C) presume
(B) waste (D) consume
2. According to a team of U.S. and Chinese researchers, the smog made in China does not stay there. Their findings indicate the pollution is ____ across the Pacific Ocean and clouding air in the United States.
(A) drifting (C) gliding
(B) shifting (D) grinding
3. Noodles are not only an important staple food in Taiwan, but are also eaten on special occasions such as birthdays and weddings, because they ____ something that is long-lasting.
(A) designate (C) specify
(B) symbolize (D) illustrate
4. The company had a hiring problem and couldn't find the right people—the 'sales pros' who could explain the ____ of a camera without using complex explanations of terms like aperture or audio format.
(A) heritages (C) attributes
(B) features (D) origins
5. When asked what would be the biggest factors behind change in the coming years, 82% of global bosses said ____ in technology would have the most impact.
(A) advances (C) degenerations
(B) expansions (D) deteriorations
6. Over 85% of the fine particles and ____ chemicals in second-hand smoke are invisible and levels of harmful particles can reach very high peaks when the smoke lingers in the air for long after the cigarette is extinguished."
(A) risky (C) hazardous
(B) wounding (D) critical
7. The Nobel Prize in Economics in 2013 has been awarded to three academics who have ____ our understanding of stock and house prices.
(A) rehabilitated (C) transformed
(B) renovated (D) originated
8. Avoid fast foods and junk foods, in order to have chemical-free life or reduce our ____ to the chemicals.
(A) exposure (C) introduction
(B) processing (D) coverage
9. With no approved medications to treat cancer, her parents are turning to ____ therapies.
(A) probable (C) alternative
(B) conventional (D) mysterious
10. By setting up branch offices abroad, he hopes to ____ the business and boost sales.
(A) dominate (C) invest
(B) expand (D) transport
11. According to a recent research study, the quality of higher education in many countries continues to ____ due to a lack of funding.
(A) minimize (C) underlie
(B) recess (D) decline
12. Today, one can hardly talk about environmental protection without mentioning ____ development.
(A) evolutionary (C) forthcoming
(B) groundbreaking (D) sustainable
13. The newly-opened driving center offers a full ____ of courses, from beginner to more advanced training.
(A) range (C) section
(B) category (D) version
14. Winning an Academy Award is perhaps the ____ goal of many Hollywood artists.
(A) essential (C) ultimate
(B) primate (D) contemporary

15. Alcohol consumption, together with the high intake of calories from junk food, has turned the holiday season into a time of _____.
 (A) recess (C) access
 (B) excess (D) success
16. The public are more aware of health hazards, food _____ and food safety; therefore, consumers tend to buy organic food nowadays.
 (A) additives (C) supplements
 (B) extracts (D) concentrations
17. Taipei 101, surely _____ among the tallest man-made construction on the planet.
 (A) attributes (C) sorts
 (B) classifies (D) ranks
18. Fortunately, the transmission of the _____ disease is successfully controlled by the breakthrough in vaccination.
 (A) infectious (C) superstitious
 (B) pretentious (D) precautions
19. The government established several _____ shelters after the severe landslide brought by the super typhoon.
 (A) emigration (C) evacuation
 (B) accommodation (D) inhabitation
20. If you would like to spend time _____ the unspoiled nature of Africa, check out the pamphlets from the local tour agents.
 (A) circulating (C) advancing
 (B) marching (D) exploring

Part 2: Cloze (20% , 每題 2 分)

Directions: Read the passages below. Some words or phrases are missing in the texts of the paragraphs. Choose the appropriate words or phrases that best fit the blanks in the passages to complete the texts.

Questions 21-25 refer to the following passage.

The total population suffering from diabetes will have reached 366 million around the world by 2030. Some scientists have cast doubts on the value of modern medicine to protect (21) _____ diabetes because this disease consumes a large amount of health budget. However, a(n) (22) _____ news is that a Taiwanese research team has found a crucial substance which might (23) _____ diabetes. Since plant extracts are by far the most common elements used in traditional Chinese medicine, the team looked at the (24) _____ of several herbal ingredients and claimed that monascus, a substance found in red yeast rice, could prevent diabetes from deteriorating. This kind of medical discovery will create an (25) _____ on and expedite the development of further herbal medicine research.

21. (A) upon (C) against
 (B) over (D) under
22. (A) gloomy (C) anxious
 (B) inspiring (D) shocking
23. (A) restrain (C) restrict
 (B) moderate (D) prevent
24. (A) effects (C) factors
 (B) defects (D) reflects
25. (A) affect (C) usage
 (B) effort (D) impact

Questions 26-30 refer to the following passage.

You may be familiar with carbon footprint, but have you heard of water footprint? Water footprint is a(n) (26) _____ of water use that looks at both direct and indirect water use of a consumer or producer. Since water problems are often closely tied to the structure of the global economy, calculating water footprint can help (27) _____ global awareness about these problems. For example, many countries have significantly externalized their water footprint, importing water-intensive goods from elsewhere. This puts pressure (28) _____ the water resources in the exporting regions, (29) _____ too often mechanisms for wise water governance and conservation are lacking. Not only governments, but also consumers, businesses and civil society communities can play a role in (30) _____ a better management of water resources.

26. (A) symbol (C) signal
 (B) indicator (D) framework

27. (A) draw (C) bring
(B) attract (D) raise
28. (A) to (C) on
(B) for (D) in
29. (A) when (C) where
(B) why (D) how
30. (A) articulating (C) formulating
(B) achieving (D) retaining

Part 3: Reading Comprehension (20% , 每題 2 分)

Directions: In this part, you will read two passages. Read the passages carefully and then select the best answer to each question.

Questions 31-36 refer to the following passage.

Shrimp is popular seafood. As delicious as shrimp may be, we actually should not be eating them. Shrimp is either farmed or wild, but neither option is good for the environment. Farmed shrimp are kept in ponds on the coast, where the tide can refresh the water and carry waste out to sea. Ponds are prepared with heavy doses of chemicals where the shrimp receive pesticides and antibiotics. Shrimp farmers have destroyed an estimated 38 percent of the world's mangroves to create shrimp ponds, and the damage is permanent. Not only do the mangroves not return long after production has ended, but the surrounding areas become wastelands. Wild shrimp isn't a better option because it usually involves the use of deep-sea trawlers, which kills 5 to 20 pounds of "bycatch" (unwanted species of fish accidentally scooped up by the trawler's net) for every pound of shrimp. As for health risks, researchers found 162 separate varieties of bacteria with resistance to 10 different antibiotics in imported ready-to-eat shrimp. There aren't many 'good' options for those who still want to eat shrimp. Until production standards change dramatically, buying shrimp only perpetuates a horrible system.

31. What is the main purpose of the passage?

- (A) To explain why shrimp is bad seafood.
(B) To describe how shrimp production functions.
(C) To suggest options for people who love shrimp.
(D) To persuade people to stop eating shrimp.

32. What impact would wild shrimp have on the environment, according to the passage?

- (A) Their everlasting damage is done to the surrounding areas.
(B) The use of deep-sea trawlers kills species of fish.
(C) The use of pesticides and antibiotics pollutes sea water.
(D) Their waste in the surrounding sea contains varieties of bacteria.

33. Which of the followings about farmed shrimp is true?

- (A) They are more popular than wild shrimp.
(B) They need to be kept in fresh water.
(C) Their production requires ten different antibiotics.
(D) Their production turns mangroves into wastelands.

34. What does the word "return" mean in the passage?

- (A) To grow.
(B) To renew.
(C) To survive.
(D) To prosper.

35. Which of the following statements would the author most agree with?

- (A) Standards for shrimp production will never change.
(B) The government should not import shrimp from developing countries.
(C) Shrimp lovers are part of the terrible shrimp production system.
(D) Eating wild shrimp with less amount of chemicals is better than eating farmed shrimp.

Questions 36-40 refer to the following passage.

Talent scarcity or the feeling it is coming on soon is rising to the top of the agenda for the current global business leaders. In parts of Asia, companies are struggling to cope with a workforce that consistently job-hops – rather than sticking with one firm and gradually creating value for that company by keeping skills and knowledge there. Europe contends with a "frozen middle management," leaving chief executives trying to find ways to boost new ideas. On a global scale, some of the largest companies point out that it's actually a mix of skills and backgrounds that are crucial to expanding their global business, but attaining this kind of diversity is difficult.

As companies look to build their talent pipelines, many are trying more innovative ideas to combat scarcity of certain skills. Some are introducing their brands to potential employees who previously were not even interested in

an interview. The Boston office at education giant Kaplan Inc, has recently **launched** a 12-week camp for people within the Boston area who are looking to boost their skills. Graduates of the camp are sometimes offered jobs at Kaplan. Meeting potential candidates long before they apply for a job helps the company to expand their brand.

36. **What is the main idea of the passage?**

- (A) The shortage of the skilled workforce.
- (B) The deficiency of global leaders.
- (C) The struggle of global companies.
- (D) The diversity of global businesses.

37. **What problem are the global businesses in Asian areas facing, according to the passage?**

- (A) Struggling to find the skilled workforce.
- (B) Struggling to find the workforce with similar value.
- (C) Frequent job changing of the company employees.
- (D) Consist job hogging of the company leaders.

38. **Which of the followings is important for some large global companies to expand their business, according to the passage?**

- (A) To create a mix of skills and backgrounds of the employees.
- (B) To cope with a workplace for consistent job hoppers.
- (C) To create a corporate value to fit the job-hopping trend.
- (D) To stick with a consistent value that the companies create.

39. **Why is Kaplan, an education giant, mentioned in the passage?**

- (A) To show how a company can expand its brand through hiring potential employees.
- (B) To illustrate how a company meet potential candidates before job applying.
- (C) To show how a global company encourages job searchers apply for its jobs.
- (D) To illustrate how a company can boost skills of new hires and expand its brand.

40. **What does the word “launched” mean in the passage?**

- (A) Released.
- (B) Expanded.
- (C) Promoted.
- (D) Initiated.

Part 4: Writing Skills (20% , 每題 2 分)

A. Writing at sentence level: Choose the one mistake in the sentence.

41. The thinning of the ozone layer that protects the Earth (A) with the sun's intense heat is tremendous and it has apparently (B) caused increase of the Earth's temperature that is capable of (C) creating heat waves to (D) affected countries.
 (A) A (C) C
 (B) B (D) D
42. The volcano eruption covered all of the western U.S. are among the largest known to have ever (A) occurred on Earth, (B) produced drastic climate change (C) in the (D) aftermath.
 (A) A (C) C
 (B) B (D) D
43. Fatigue and alcohol are two known triggers for memory lapse, (A) so (B) avoid these can help in situations (C) where you need to (D) stay sharp.
 (A) A (C) C
 (B) B (D) D
44. No matter (A) how many times she (B) has tried to stop, she just can't give up (C) search for the perfect recipe that many have said (D) not existing.
 (A) A (C) C
 (B) B (D) D
45. According to eight police officers who emerged (A) from different directions (B) to deliver eight variations of warnings, pedestrians (C) forbid to cross from one side to (D) the other.
 (A) A (C) C
 (B) B (D) D

B. Writing at paragraph level: The topic sentence or one of the sentences in each paragraph has been missing. Choose the best answer to complete each paragraph.

46.

There are three reasons why Norway is one of the best countries in the world. First, it has an excellent health care system. All Norwegians have access to medical services at a reasonable price. Second, Norway has a high standard of education. Students are taught by well-trained teachers and most of the people continue studying at university. Finally, its cities are clean and efficiently managed. Norwegian cities have many parks and lots of space for people to live. As a result, _____.

- (A) Norway is ideal for higher education.
- (B) Norway is a perfect sightseeing location for tourists.
- (C) Norway is affordable for most people to love.
- (D) Norway is a desirable place to live.

47.

_____. From the earliest times, kings used initial rings to sign document. Later, during Greek times, when Alexander the Great died, his vast kingdom was divided among his generals, who also got copies of his signet ring. They used these themselves and even allowed trusted advisors to use them. Finally, the custom spread among the common people, and nearly everybody who couldn't write signed official documents with a signet ring. Rings thus became a sign of contractual agreement, which meaning was eventually applied to wedding rings.

- (A) The importance of the rings is initially documented since earlier times in history.
- (B) The custom of using rings in weddings is documented officially since Greek times.
- (C) The use of wedding rings has evolved as the latest of all the bridal traditions.
- (D) The use of rings has been popular for new-weds for a long time.

48.

The general principles of making cheese from milk have changed little for nearly 3000 years. _____. The first step is to add acid or enzyme to the milk. Next, the liquid, called whey, is drained, leaving a semi-solid cheese, called curds. All soft or cream cheeses are of this type. Hard cheese undergoes two additional steps in the process. The semi-solid cheese is matured, salted and pressed into forms or moulds. The final step is the aging process during which the world's most famous cheeses acquire their unique flavors from the place and length of storage.

- (A) All the methods are slightly changed.
- (B) Making cheese is not an easy task at all.
- (C) The process consists of two to four basic steps.
- (D) The principles are followed in different cultures.

49.

_____. The highest of these castes is that of the Brahmins or priests. The next highest is the varna of the warriors, known as the Rajput caste. Below this comes the merchant caste and the lowest caste is known as the Sudra caste. While castes are traditionally associated with a type of occupation, in modern India, occupations are not a reliable guide to caste.

- (A) The Hindu people have been emphasized the hierarchical status under the castes.
- (B) The whole Hindu population of India can be divided into four castes.
- (C) The castes in India are placed at the top in the traditional society.
- (D) The castes in India are part of tradition in the Hindu history.

50.

Alex loves to jog. He has strong legs, so jogging is easy for him. _____. He started jogging a year ago to get in shape, but now he runs because he loves it. He has even run in a few marathons, and he enjoys the competition. Alex says that he'll run until the day he dies.

- (A) He has a lot of friends who love jogging as much as he does.
- (B) He also has good endurance, and his lungs seldom ache.
- (C) He often cramps up because he has tight muscles.
- (D) He has enjoyed running in marathons ever since.

