



In this test, there are 25 multiple choice questions with 4 points for each question. Please select the correct answer for each question.

1. Two balls are drawn from an urn containing 5 balls numbered from 1 to 5. The first ball is kept if it is numbered 1, and returned to the urn otherwise. What is the probability that the second ball drawn is number 2?

(A) 0.18 (B) 0.21 (C) 0.24 (D) 0.27 (E) 0.30

2. At a certain college, 20 percent of the men and 1 percent of the women are over six feet tall. Furthermore, 40 percent of the students are women. If a student is randomly picked and is observed to be over 6 feet tall, what is the probability that the student is a woman?

(A) 0.012 (B) 0.017 (C) 0.022 (D) 0.027 (E) 0.032

3. Consider the following probability density function:

$$\begin{aligned} f(x) &= kx; & 0 \leq x < 2, \\ &= k(4-x), & 2 \leq x \leq 4, \\ &= 0, & \text{otherwise.} \end{aligned}$$

What is the variance of X ?

(A) 1/3 (B) 2/3 (C) 1.0 (D) 4/3 (E) 5/3

4. A continuous random variable X has the probability density function

$$f(x) = \frac{2x}{9}, \quad 0 < x < 3.$$

What is the value of m such that $P(X \geq m) = P(X \leq m)$?

(A) 1.8383 (B) 2.0 (C) 2.1213 (D) 2.3333 (E) 2.6667

5. The repair time X (in hours) for a certain electronically controlled milling machine follows the density function:

$$f(x) = 4xe^{-2x}, \quad x > 0.$$

What is the moment-generating function of X ?

(A) $(1-t/2)^{-2}$ (B) $(1-t/2)^{-1}$ (C) $(1-t/3)^{-2}$
 (D) $(1-t/3)^{-1}$ (E) $(1-2t)^{-1}$



6. Let X_1 and X_2 be distributed according to

$$f(x_1, x_2) = 2, \quad 0 \leq x_1 \leq x_2 \leq 1.$$

What is the correlation coefficient between X_1 and X_2 ?

- (A) 0.35 (B) 0.4 (C) 0.45 (D) 0.5 (E) 0.55

7. For the multivariate distribution

$$f(x, y) = \frac{k}{(1+x+y)^5}, \quad x \geq 0, y \geq 0.$$

What is the value of k ?

- (A) 12 (B) 14 (C) 16 (D) 18 (E) 20

8. A lot of 25 color television tubes is subjected to an acceptance testing procedure.

The procedure consists of drawing five tubes at random, without replacement, and testing them. If two or fewer tubes fail, the remaining ones are accepted. Otherwise the lot is rejected. Assume the lot contains four defective tubes. What is the probability of lot acceptance?

- (A) 0.82 (B) 0.86 (C) 0.90 (D) 0.94 (E) 0.98

9. Let X be uniformly distributed between a and b and symmetric about zero with variance 1.

What is the value of $a^2 + b^2$?

- (A) 2 (B) 4 (C) 6 (D) 8 (E) 10

10. A certain type of light bulb has an output known to be normally distributed with mean 2500 end footcandles and standard deviation 75 end footcandles. What is the lower specification limit such that only five percent of the manufactured bulbs will be defective?

- (A) 2369.45 fc (B) 2376.63 fc (C) 2383.33 fc
(D) 2389.78 fc (E) 2396.66 fc

11. The Rockwell hardness of a particular alloy is normally distributed with mean 70 and standard deviation 4. Suppose a specimen is acceptable only if its hardness is between 62 and 72. What is the expected number of acceptable specimens among the nine randomly selected specimens?

- (A) 5.099 (B) 5.333 (C) 5.667 (D) 6.018 (E) 6.333



12. An assembly consists of three components placed side by side. The length of each component is normally distributed with mean 2 inches and standard deviation 0.2 inches. Specifications require that all assemblies are between 5.7 and 6.3 inches long. On the average, how many assemblies will pass these requirements?
 (A) 0.416 (B) 0.456 (C) 0.516 (D) 0.556 (E) 0.616
13. Round-off error has a uniform distribution on $[-0.5, +0.5]$ and round-off errors are independent. A sum of 50 numbers is calculated where each is of the form $XXX.D$, rounded to XXX before adding. What is the probability that the total round-off error exceeds five?
 (A) 0.0071 (B) 0.0081 (C) 0.0091 (D) 0.0101 (E) 0.0111
14. A college statistics professor has office hours from 9:00 am to 10:30 am daily. A sample of waiting times to see the professor (in minutes) is 10,12,20,15,17,10,30,28,35,28,19,27,25,22,33,37,14,21,20,23. Assuming $\sigma = 7.84$, find the 95% confidence interval for the population mean.
 (A) 18.8 to 25.8 (B) 19.5 to 35.1 (C) -3.5 to 3.5
 (D) -7.7 to 7.8 (E) 14.46 to 30.14
15. In which of the following situations is it reasonable to use the z-interval procedure to obtain a confidence interval for the population mean? Assume that the population standard deviation is known.
 A. $n=10$, the data contain no outliers; the variable under consideration is not normally distributed.
 B. $n=10$, the variable under consideration is normally distributed.
 C. $n=38$, the data contain no outliers; the variable under consideration is far from normally distributed.
 D. $n=18$, the data contain outliers; the variable under consideration is normally distributed.
 (A) B (B) C (C) B,C (D) A,B,C (E) A,D
16. The weekly earnings of students in one age group are normally distributed with a standard deviation of 36 dollars. A researcher wishes to estimate the mean weekly earnings of students in the age group. Find the sample size needed to assure with 98% confidence that the sample mean will not differ from the population mean by more than 3 dollars.
 (A) 22 (B) 66 (C) 77 (D) 782 (E) 11



17. Which of the following statements regarding t-curves is/are true?
- A. The total area under a t-curve with 10 degrees of freedom is greater than the area under the standard normal curve.
- B. The t-curve with 10 degrees of freedom is flatter and wider than the standard normal curve.
- C. The t-curve with 10 degrees of freedom more closely resembles the standard normal curve than the t-curve with 20 degrees of freedom.
- D. As the degrees of freedom increases, the t-curve is more close to the standard normal curve.
- (A) B,C (B) B (C) A,B (D) A,B,C (E) B,D
18. At one school, the average amount of time that students spend watching television each week is 21.6 hours. The principal introduces a campaign to encourage the students to watch less television. One year later, the principal wants to perform a hypothesis test to determine whether the average amount of time spent watching television per week decreased. Assume that $\sigma = 7.5$ hours, $n = 49$ and the significance level is .05. Find the probability of type II error of the test if in fact $\mu = 20$ hours.
- (A) 0.95 (B) 0.1808 (C) 0.0808 (D) 0.2802 (E) 0.3192
19. The amounts (in ounces) of juice in eight randomly selected juice bottles are: 15.7, 15.3, 15.6, 15.3, 15.4, 15.0, 15.6, 15.4.
Find a 95% confidence interval for the standard deviation, σ , of the amounts of juice in all such bottles.
- (A) 0.13 to 0.46 (B) 0.22 to 0.46 (C) 0.15 to 0.45
(D) 0.18 to 0.69 (E) 0.02 to 0.21
20. Find the p-value for a test of the claim that more than 50% of the people following a particular diet will experience increased energy. Of 100 randomly selected subjects who followed the diet, 47 noticed an increase in their energy level.
- (A) 0.0239 (B) 0.4761 (C) 0.2743 (D) 0.4514 (E) 0.5239
21. The equation of regression line for the paired data below is $\hat{y} = 3x$. Find SSE.
- | | | | | |
|---|---|----|----|----|
| x | 2 | 4 | 5 | 6 |
| y | 7 | 11 | 13 | 20 |
- (A) 14.25 (B) 10.00 (C) 88.75 (D) 78.75 (E) 16.78



22. Which of the following statement concerning the linear correlation coefficient is/are correct?

- A. If the linear correlation coefficient for two variables is zero, then there is no relationship between the variables.
 - B. If the slope of the regression equation is negative, then the linear correlation coefficient is negative.
 - C. The value of the linear correlation coefficient always lies between -1 and 1 inclusive.
 - D. A correlation coefficient of 0.62 suggests a stronger linear relationship than a correlation coefficient of -0.82.
- (A) B,C (B) C,D (C) A,B (D) A,D (E) A,C

23. A grass seed company conducts a study to determine the relationship between density of seeds planted (in pounds per 500 square feet) and the quality of the resulting lawn. Eight similar plots of land are selected and each is planted with a particular density of seed. One month later the quality of each lawn is rated on a scale of 0 to 100. The sample data are given below.

Seeds Density, x	1	1	2	3	3	3	4	5
Lawn Quality, y	30	40	40	40	50	65	50	50

The equation of regression line is $\hat{y} = 33.14 + 4.54x$. Find the residual for $x=3$.

- (A) -6.76, 3.24, 18.24 (B) 14.72 (C) 4.91
 (D) 6.76, 3.24, 18.24 (E) 46.76, 46.76, 46.76

24. Again use the problem in above question, the equation of regression line is $\hat{y} = 33.14 + 4.54x$. A 95% confidence interval for the slope of the population regression line that relates lawn quality to seed density is -1.50 to 10.58. Which of the following is/are a correct interpretation of this confidence interval?

- A. We can be 95% confident that the slope, β_1 , of the population regression line is between -1.50 and 10.58.
- B. We can be 95% confident that with each unit increase in seed density, the increase in lawn quality is somewhere between -1.50 and 10.58.
- C. We can be 95% confident that with each unit increase in seed density, the increase in mean lawn quality is somewhere between -1.50 and 10.58.
- D. If seed density increase by one unit, there is a 95% chance that the increase in lawn quality lies between -1.50 and 10.58.

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

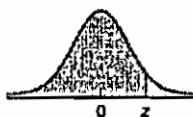


25. Three different brands of tires were compared for wear characteristics. From each brand of tire, ten tires were randomly selected and subjected to standard wear-testing procedures. The average mileage obtained for each brand of tire and sample variances (both in 1,000 miles) are shown below.

	Brand A	Brand B	Brand C
Average Mileage	37	38	33
Sample Variance	3	4	2

Which of the following statement concerning the ANOVA table is/are correct?

- (A) $SS_{TR} = 108$ (B) $SSE = 9$ (C) $MSE = 3$
 (D) $MSTR = 140$ (E) $F = 28.3$

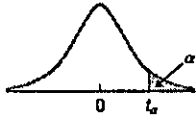

 TABLE II (cont.)
 Areas under the
 standard normal curve


z	Second decimal place in z									
	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998
3.5	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998
3.6	0.9998	0.9998	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
3.7	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
3.8	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
3.9	1.0000†									

† For $z \geq 3.90$, the areas are 1.0000 to four decimal places.



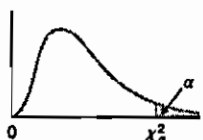
TABLE IV
Values of t_{α}



df	$t_{0.10}$	$t_{0.05}$	$t_{0.025}$	$t_{0.01}$	$t_{0.005}$	df
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
30	1.310	1.697	2.042	2.457	2.750	30
31	1.309	1.696	2.040	2.453	2.744	31
32	1.309	1.694	2.037	2.449	2.738	32
33	1.308	1.692	2.035	2.445	2.733	33
34	1.307	1.691	2.032	2.441	2.728	34
35	1.306	1.690	2.030	2.438	2.724	35
36	1.306	1.688	2.028	2.434	2.719	36
37	1.305	1.687	2.026	2.431	2.715	37
38	1.304	1.686	2.024	2.429	2.712	38
39	1.304	1.685	2.023	2.426	2.708	39
40	1.303	1.684	2.021	2.423	2.704	40
41	1.303	1.683	2.020	2.421	2.701	41
42	1.302	1.682	2.018	2.418	2.698	42
43	1.302	1.681	2.017	2.416	2.695	43
44	1.301	1.680	2.015	2.414	2.692	44
45	1.301	1.679	2.014	2.412	2.690	45
46	1.300	1.679	2.013	2.410	2.687	46
47	1.300	1.678	2.012	2.408	2.685	47
48	1.299	1.677	2.011	2.407	2.682	48
49	1.299	1.677	2.010	2.405	2.680	49



TABLE VII
Values of χ^2_{α}



df	$\chi^2_{0.995}$	$\chi^2_{0.99}$	$\chi^2_{0.975}$	$\chi^2_{0.95}$	$\chi^2_{0.90}$
1	0.000	0.000	0.001	0.004	0.016
2	0.010	0.020	0.051	0.103	0.211
3	0.072	0.115	0.216	0.352	0.584
4	0.207	0.297	0.484	0.711	1.064
5	0.412	0.554	0.831	1.145	1.610
6	0.676	0.872	1.237	1.635	2.204
7	0.989	1.239	1.690	2.167	2.833
8	1.344	1.646	2.180	2.733	3.490
9	1.735	2.088	2.700	3.325	4.168
10	2.156	2.558	3.247	3.940	4.865
11	2.603	3.053	3.816	4.575	5.578
12	3.074	3.571	4.404	5.226	6.304
13	3.565	4.107	5.009	5.892	7.042
14	4.075	4.660	5.629	6.571	7.790
15	4.601	5.229	6.262	7.261	8.547
16	5.142	5.812	6.908	7.962	9.312
17	5.697	6.408	7.564	8.672	10.085
18	6.265	7.015	8.231	9.390	10.865
19	6.844	7.633	8.907	10.117	11.651
20	7.434	8.260	9.591	10.851	12.443
21	8.034	8.897	10.283	11.591	13.240
22	8.643	9.542	10.982	12.338	14.041
23	9.260	10.196	11.689	13.091	14.848
24	9.886	10.856	12.401	13.848	15.659
25	10.520	11.524	13.120	14.611	16.473
26	11.160	12.198	13.844	15.379	17.292
27	11.808	12.879	14.573	16.151	18.114
28	12.461	13.565	15.308	16.928	18.939
29	13.121	14.256	16.047	17.708	19.768
30	13.787	14.953	16.791	18.493	20.599
40	20.707	22.164	24.433	26.509	29.051
50	27.991	29.707	32.357	34.764	37.689
60	35.534	37.485	40.482	43.188	46.459
70	43.275	45.442	48.758	51.739	55.329
80	51.172	53.540	57.153	60.391	64.278
90	59.196	61.754	65.647	69.126	73.291
100	67.328	70.065	74.222	77.930	82.358


 TABLE VII (cont.)
 Values of χ^2_{α}

$\chi^2_{0.10}$	$\chi^2_{0.05}$	$\chi^2_{0.025}$	$\chi^2_{0.01}$	$\chi^2_{0.005}$	df
2.706	3.841	5.024	6.635	7.879	1
4.605	5.991	7.378	9.210	10.597	2
6.251	7.815	9.348	11.345	12.838	3
7.779	9.488	11.143	13.277	14.860	4
9.236	11.070	12.833	15.086	16.750	5
10.645	12.592	14.449	16.812	18.548	6
12.017	14.067	16.013	18.475	20.278	7
13.362	15.507	17.535	20.090	21.955	8
14.684	16.919	19.023	21.666	23.589	9
15.987	18.307	20.483	23.209	25.188	10
17.275	19.675	21.920	24.725	26.757	11
18.549	21.026	23.337	26.217	28.300	12
19.812	22.362	24.736	27.688	29.819	13
21.064	23.685	26.119	29.141	31.319	14
22.307	24.996	27.488	30.578	32.801	15
23.542	26.296	28.845	32.000	34.267	16
24.769	27.587	30.191	33.409	35.718	17
25.989	28.869	31.526	34.805	37.156	18
27.204	30.143	32.852	36.191	38.582	19
28.412	31.410	34.170	37.566	39.997	20
29.615	32.671	35.479	38.932	41.401	21
30.813	33.924	36.781	40.290	42.796	22
32.007	35.172	38.076	41.638	44.181	23
33.196	36.415	39.364	42.980	45.559	24
34.382	37.653	40.647	44.314	46.928	25
35.563	38.885	41.923	45.642	48.290	26
36.741	40.113	43.195	46.963	49.645	27
37.916	41.337	44.461	48.278	50.994	28
39.087	42.557	45.722	49.588	52.336	29
40.256	43.773	46.979	50.892	53.672	30
51.805	55.759	59.342	63.691	66.767	40
63.167	67.505	71.420	76.154	79.490	50
74.397	79.082	83.298	88.381	91.955	60
85.527	90.531	95.023	100.424	104.213	70
96.578	101.879	106.628	112.328	116.320	80
107.565	113.145	118.135	124.115	128.296	90
118.499	124.343	129.563	135.811	140.177	100



一、選擇題(44%)

1) According to Goldman et al. (1995), permanent virtual corporations are designed to do the following except:

- A) Create or assemble productive resources rapidly.
- B) Create or assemble productive resources frequently and concurrently.
- C) Create the product planning and control.
- D) Create or assemble a broad range or productive resources.

2) According to Goldman et al. (1995), in a virtual corporation the resources of the business partners remain in their original locations but are integrated. Since the partners are in different locations, they need information systems for supporting communication and collaboration. Such systems are a special of _____ systems.

- A) Virtual organization.
- B) Inter-organizational Information Systems (IOSs).
- C) Global Information Systems.
- D) Strategy Information Systems (SISs).

3) _____ is a process that helps organizations identify, select, organize, disseminate, and transfer important information and expertise that are part of the organization's memory and that typically reside within the organization in an unstructured manner.

- A) Knowledge economics.
- B) Organization communication.
- C) Decision analysis.
- D) Knowledge management.

4) Encouraging employees to use a knowledge management system, both for contributing knowledge and for seeking knowledge, can be difficult. The reasons people do not like to share knowledge are as follows except:

- A) Since organizations are becoming more virtual in nature.
- B) Willing to share, but not enough time to do so.
- C) No skill in knowledge management techniques.
- D) Don't understand knowledge management and benefits.

5) The majority of personal DSSs support the work of professionals and middle-level managers. Organizational DSSs provide support primarily to planners, analysts, researchers, or to some managers. Rarely do we see a DSS used directly by top or even middle-level executives. Such system is called:

- A) GDSS.
- B) SIS.
- C) Intelligent IS.
- D) EIS.

6) _____ are computer programs to help users conduct routine tasks, to search and retrieve information, to support decision making, and to act as consulting experts.

- A) Purchasing cards.
- B) Electronic payment
- C) Intelligent agents.
- D) Electronic funds transfer.



- 13) A broad-based understanding of information systems that includes behavioral knowledge about organizations and individuals using information systems as well as technical knowledge about computers is called:
- A) computer literacy.
 - B) technology literacy.
 - C) management literacy.
 - D) information systems literacy.
- 14) Management-level systems are information systems that support the:
- A) long-range planning activities of senior management.
 - B) knowledge and data workers in an organization.
 - C) decision-making and administrative activities of middle managers.
 - D) day-to-day processes of production.
- 15) An information system can enhance core competencies the most by:
- A) creating educational opportunities for management.
 - B) allowing operational employees to interact with management.
 - C) lowering transaction costs.
 - D) encouraging the sharing of knowledge across business units.
- 16) The future Internet-driven supply chain will provide multidirectional communication among firms, networks of firms, and e-marketplaces so that entire networks of supply chain partners can:
- A) maintain constant communication in horizontal industries.
 - B) maintain competitive pricing structures.
 - C) immediately adjust inventories, orders, and capacities.
 - D) help senior managers prioritize future investments.
- 17) Businesses can waste thousands and even millions of dollars building and maintaining a Web site that fails to deliver the desired results if they are unclear about their online strategy and its relationship to:
- A) the speed with which business is conducted on the Internet.
 - B) their overall business strategy.
 - C) their security requirements.
 - D) their customers.
- 18) The fundamental principle of data administration is that all data:
- A) be normalized.
 - B) be owned by individual departments.
 - C) are recursive.
 - D) belong to the company as a whole.
- 19) When packets of data are encrypted and wrapped inside IP packets so that non-IP data can travel through the Internet, the process is called:
- A) packet switching.
 - B) tunneling.
 - C) encryption.
 - D) WWTP.



- 20) A knowledge frame is:
 A) a strategy for searching the rule base in an expert system that begins with information entered by the user.
 B) the programming environment of an expert system.
 C) a method of organizing expert system knowledge into chunks.
 D) a strategy for searching the rule base in an expert system that begins with a hypothesis.
- 21) When the nature of the organization itself is radically reconceptualized, the result is:
 A) rationalization of procedures. B) paradigm shifts.
 C) automation. D) business process reengineering.
- 22) Currently, the protocols used for secure information transfer over the Internet are:
 A) S-HTTP and CA. B) HTTP and TCP/IP.
 C) TCP/IP and CA. D) SSL and S-HTTP.

二、填充題(26%)(中文回答亦可)

1. According to the value chain model (Porter, 1985), the activities conducted in any manufacturing organization can be divided into two parts: primary activities and support activities. The five primary activities are: 1 _____, 2 _____, 3 _____, 4 _____, 5 _____.
2. The four support activities of Porter's value chain model are: 6 _____, 7 _____, 8 _____, Procurement.
3. One of the most well-known frameworks for analyzing competitiveness is Porter's competitive forces model (1985). It has been used to develop strategies for companies to increase their competitive edge. It also demonstrates how IT can enhance the competitiveness of corporations. The model recognizes five major forces that could endanger a company's positions in a given industry. The five major forces can be generalized as follows: 9 _____, 10 _____, 11 _____, 12 _____, 13 _____.

三、問答題(30%)

In modern information age, more and more organizations leverage information technology with all their significant business processes and relationships with customers, suppliers, and employees. List and describe the following issues concerning these digital firms.

- Four major systems that helped define the digital firms.
- Three most common competitive strategies at the industry level.
- Three different internet business models and the impact of internet on the economics of information.



第壹部份

一、選擇題 (每題 2 分)

1. The newest application architecture is the _____, in which most or all of the work is done by cooperating user computers, such as desktop PCs.
 (A) Client/Server architecture (B) 3-tier architecture
 (C) Terminal/Host architecture (D) Peer-to-Peer (P2P) architecture
2. Which of the following implements security at the Transport layer?
 (A) Proxy (B) SSL (C) IPsec (D) L2TP
3. In C, variables declared in a block or in the parameter list of a function are assumed to be of storage class _____ unless specified otherwise.
 (A) auto (B) extern (C) register (D) static
4. In C++, it is possible to have various functions with the same name that each operates on different types and/or numbers of arguments. This is called _____.
 (A) friend function (B) polymorphism
 (C) function overloading (D) member function
5. A _____ is an interaction diagram that emphasizes the structural organization of objects that send and receive messages in the UML.
 (A) activity diagrams (B) statechart diagrams
 (C) sequence diagrams (D) collaboration diagrams
6. The _____ is not a software process model. Instead, it is a strategy for improving the software process, irrespective of the process model used.
 (A) incremental model (B) spiral model
 (C) capability maturity model (D) rapid prototyping model
7. _____ scheduling is more appropriate for a time-shared (interactive) system.
 (A) Round-robin (B) Best-job-first
 (C) Shortest-job-first (D) First-come, first-served
8. Which of the following belongs to the counting-based page replacement?
 (A) LRU (least recently used) (B) MFU (most frequently used)
 (C) FIFO (first-in first-out) (D) SSLO (size-small first-out)
9. Which of the following is a negative impact of information systems?
 (A) Information systems can perform calculations or process paperwork much faster than people.
 (B) Information systems can help companies learn more about the purchase patterns and preferences of their customers.
 (C) The Internet can be used to distribute illegal copies of software, books, articles, and other intellectual property.
 (D) The Internet distributed information instantly to millions of people across the world.
10. Which of the following is the top level of information architecture?



7. What does it mean when a route table says that an address is variably subnetted?
- Two or more subnets of a major IP network address are separated by a different major IP address.
 - More than one subnet mask are known for subnets of the same major IP address.
 - A single route entry can point to multiple subnets or major IP addresses.
 - Packets are distributed among multiple paths with variable metrics.
8. Which one of the following is NOT a problem associated with distance vector protocols?
- Slow convergence.
 - Route loops.
 - Counting to infinity.
 - Broadcasting message.
9. RIP uses a hop count metric. Which one of the following hop count value is used to indicate an unreachable network?
- 16
 - 32
 - 64
 - 255
10. Which UDP port number is used to access IGRP?
- IGRP does not use a UDP port.
 - 520
 - 790
 - 1021
11. Which one of the following is NOT an OSPF router type?
- Internal Routers.
 - Backbone Routers.
 - Multipoint Routers.
 - Autonomous System Boundary Routers.
12. In CDMA, let Y_m be the received value in the m th mini-slot for some slot i . Let c_m , $m=1, \dots, M$, be the sender's M code values. To determine the bit value the sender sent, the receiver
- multiplies Y_m with the sum of the M code values.
 - simply declares Y_m as the sent value.
 - multiplies each Y_m with the corresponding c_m , sums the resulting values and divides by M .
 - none of the above.
13. In GSM, when system decides to handoff a mobile user, which of the following devices informs the visited MSC that a handoff is to be performed:
- the new base station.
 - the old base station.
 - the mobile itself.
 - the VLR.
14. Examine the structure of the EMPLOYEES table:
- | EMPLOYEE_ID | DECIMAL | Primary Key |
|-------------|-------------|-------------|
| FIRST_NAME | VARCHAR(25) | |
| LAST_NAME | VARCHAR(25) | |
- Which three statements inserts a row into the table?
- INSERT INTO employees
VALUES (NULL, 'John', 'Smith');
 - INSERT INTO employees
VALUES ('1000', 'John', NULL);



- (c) INSERT INTO employees(first_name, last_name)
VALUES('John','Smith');
- (d) INSERT INTO employees(first_name,last_name, employee_id)
VALUES (1000, 'John','Smith');

15. Examine the data in the EMPLOYEES table:

LAST NAME	DEPARTMENT ID	SALARY
Getz	10	3000
Davis	20	1500
King	20	2200
Davis	30	5000
...		

Which one of the following subqueries does NOT work?

- (a) SELECT distinct department_id
FROM employees
Where salary > ANY (SELECT AVG(salary)
FROM employees
GROUP BY department_id);
- (b) SELECT department_id
FROM employees
WHERE SALARY > ALL (SELECT AVG(salary)
FROM employees
GROUP BY department_id);
- (c) SELECT last_name
FROM employees
Where salary > ANY (SELECT MAX(salary)
FROM employees
GROUP BY department_id);
- (d) SELECT *
FROM employees
where salary > (SELECT MIN(salary)
FROM employees
GROUP BY department.id);

16. Examine the data in the EMPLOYEES and DEPARTMENTS tables:

EMPLOYEES

EMPLOYEE_ID	EMP NAME	DEPT ID	MGR ID	JOB ID	SALARY
101	Smith	20	120	SA_REP	4000
102	Martin	10	105	CLERK	2500
103	Chris	20	120	IT_ADMIN	4200
104	John	30	108	HR_CLERK	2500
105	Diana	30	108	IT_ADMIN	5000
106	Smith	40	110	AD_ASST	3000
108	Jennifer	30	110	HR_DIR	6500
110	Bob	40		EX_DIR	8000
120	Ravi	20	110	SA*DIR	6500

DEPARTMENTS



DEPARTMENT_ID	DEPARTMENT_NAME
10	Admin
20	Education
30	IT
40	Human Resources

Also examine the SQL statements that create the EMPLOYEES and DEPARTMENTS tables:

```
CREATE TABLE departments
(department_id    DECIMAL          PRIMARY KEY,
 department_name  VARCHAR(30));
```

```
CREATE TABLE employees
(EMPLOYEE_ID    DECIMAL          PRIMARY KEY,
 EMP_NAME       VARCHAR(20),
 DEPT_ID        DECIMAL          REFERENCES
 departments(department_id),
 MGR_ID         DECIMAL          REFERENCES
 employees(employee id),
 MGR_ID         DECIMAL          REFERENCES
 employees(employee id),
 JOB_ID         VARCHAR2(15),
 SALARY         DECIMAL);
```

On the EMPLOYEES table, EMPLOYEE_ID is the primary key.

MGR_ID is the ID of managers and refers to the EMPLOYEE_ID.

DEPT_ID is foreign key to DEPARTMENT_ID column of the DEPARTMENTS table.

On the DEPARTMENTS table, DEPARTMENT_ID is the primary key.

Examine this DELETE statement:

```
DELETE
FROM departments
WHERE department id = 40;
```

What happens when you execute the DELETE statement?

- Only the row with department ID 40 is deleted in the DEPARTMENTS table.
- The row with department ID 40 is deleted in the DEPARTMENTS table. Also the rows with employee IDs 110 and 106 are deleted from the EMPLOYEES table.
- The row with department ID 40 is deleted in the DEPARTMENTS table. Also the rows with employee IDs 106 and 110 and the employees working under employee 110 are deleted from the EMPLOYEES table.
- The statement fails because there are child records in the EMPLOYEES table with department ID 40.

17. The EMP table contains these columns:
LAST NAME VARCHAR2(25)



SALARY NUMBER(6,2)

DEPARTMENT_ID NUMBER(6)

You need to display the employees who have not been assigned to any department. You write the SELECT statement:

```
SELECT LAST_NAME, SALARY, DEPARTMENT_ID
FROM EMP
```

```
WHERE DEPARTMENT_ID = NULL;
```

What is true about this SQL statement?

- (a) The operator in the WHERE clause should be changed to display the desired results.
 - (b) The column in the WHERE clause should be changed to display the desired results.
 - (c) The WHERE clause should be changed to use an outer join to display the desired results.
 - (d) The SQL statement displays the desired results.
18. Examine the description of the MARKS table:
- | | |
|--------------|-------------|
| STD_ID | DECIMAL(4) |
| STUDENT_NAME | VARCHAR(30) |
| SUBJ1 | DECIMAL(3) |
| SUBJ2 | DECIMAL(3) |
- SUBJ1 and SUBJ2 indicate the marks obtained by a student in two subjects. Examine this SELECT statement based on the MARKS table:
- ```
SELECT subj1+subj2 total_marks, std_id
FROM marks
WHERE subj1 > AVG(subj1) AND subj2 > AVG(subj2)
ORDER BY total_marks;
```
- What is the result of the SELECT statement?
- (a) The statement returns an error at the WHERE clause.
  - (b) The statement returns an error at the SELECT clause.
  - (c) The statement returns an error at the ORDER BY clause.
  - (d) The statement executes successfully and returns the student ID and sum of all marks for each student who obtained more than the average mark in each subject.
19. In which case would you use a FULL OUTER JOIN?
- (a) Both tables have NULL values.
  - (b) You want all unmatched data from one table.
  - (c) You want all unmatched data from both tables.
  - (d) One of the tables has more data than the other.
20. Which operator can be used with a multiple-row subquery?
- (a) =
  - (b) LIKE
  - (c) NOT IN
  - (d) IS
21. Given the following Java program:



```

public class Test {
 public static void add3 (Integer i) {
 int val = i.intValue ();
 val += 3;
 i = new Integer (val);
 }
 public static void main (String args []) {
 Integer i = new Integer (0);
 add3 (i);
 System.out.println (i.intValue ());
 }
}

```

What is the result?

- (a) Compilation will fail.
- (b) The program prints "0".
- (c) The program prints "3".
- (d) Compilation will succeed but an exception will be thrown.

22. Given the following Java program:

```

public class Test{
 public static void main(String[]args){
 String foo = args [1];
 foo = args [2];
 foo = args [3];
 }
}

```

What is the result?

- (a) The code does not compile.
- (b) The program throws an exception.
- (c) foo has the value of "blue"
- (d) foo has the value of "green"

23. Given the following Java program:

```

public class Test{
 static int i=0;
 public int aMethod(){
 i++;
 return i;
 }
 public static void main (String args[]){
 Test test = new Test();
 test.aMethod();
 int j = test.aMethod();
 System.out.println(j);
 }
}

```

What is the result?



- (a) Compilation will fail.
- (b) Compilation will succeed and the program will print "0".
- (c) Compilation will succeed and the program will print "1".
- (d) Compilation will succeed and the program will print "2".

24. Given the following Java program:

```
class Super {
 public int i = 0;
 public Super (String text) {
 i = 1;
 }
}
public class Sub extends Super {
 public Sub (String text) {
 i = 2;
 }
 public static void main (String args[]) {
 Sub sub = new Sub ("Hello");
 System.out.println(sub.i);
 }
}
```

What is the result?

- (a) Compilation will succeed and the program will print "0".
- (b) Compilation will succeed and the program will print "1".
- (c) Compilation will succeed and the program will print "2".
- (d) Compilation will fail.

25. Given the following Java program:

```
public class Foo {
 public static void main (String[] args) {
 try {return;}
 finally {System.out.println("Finally");}
 }
}
```

What is the result?

- (a) The program runs and prints "Finally".
- (b) The program runs and prints nothing.
- (c) The code compiles, but an exception is thrown at runtime.
- (d) The code will not compile because the catch block is missing.



## 一、是非題：共 20 題，每題 1.5 分；30%

1. \_\_\_\_\_ 36 bits per pixel are needed to have a color depth of 16.7 million.
2. \_\_\_\_\_ When a program stores on-screen objects as a complex mathematical description, it is using array graphics.
3. \_\_\_\_\_ SIMMs have a 32-bit pathway, while DIMMs have a 64-bit pathway.
4. \_\_\_\_\_ A GUID (global unique identifier) is a unique identifier generated by a computer hardware component or a program.
5. \_\_\_\_\_ A data model defines how the operating system actually arranges the data on the disk.
6. \_\_\_\_\_ When users query an object-oriented database, the results often display more quickly than the same query of a relational database.
7. \_\_\_\_\_ Two of the more common tools in the UML are use case diagrams and data flow diagrams.
8. \_\_\_\_\_ VisualAge is an example of a fourth-generation language.
9. \_\_\_\_\_ WML uses the wireless application protocol (WAP), which is a standard that specifies how wireless devices communicate with the Web.
10. \_\_\_\_\_ A just-in-time (JIT) compiler converts Java source code into machine code, and a Java interpreter executes the machine code, called bytecode, because the operating system cannot execute it.
11. \_\_\_\_\_ Scripts, applets, servlets, and ActiveX controls are executed by the operating system.
12. \_\_\_\_\_ Because Perl has weak text processing capabilities, it has become an unpopular language for writing scripts.
13. \_\_\_\_\_ Speculative execution is when the processor executes an instruction, but then decides to store it because it expects the instruction to be useful.



14. \_\_\_\_\_ Lempel Ziv (LZ) encoding is an example of a category of algorithms called dictionary-based encoding.
15. \_\_\_\_\_ The fundamental objective of parallel processing is faster throughput.
16. \_\_\_\_\_ Ethernet is a LAN topology.
17. \_\_\_\_\_ DMA (Direct Memory access) is a form of I/O in which a special device controls the exchange of data between memory and I/O devices.
18. \_\_\_\_\_ The data management DSS tool enables scattered data from existing operational corporate files and databases to be collected and copied to a data warehouse.
19. \_\_\_\_\_ Direct cosine transformation (DCT) is a mathematical transformation used in JPEG.
20. \_\_\_\_\_ Unlike ERDs, systems analysts seldom use DFDs to review processes with users.

【下頁尚有試題】





## 二、選擇題：共 30 題，每題 2 分；60%

1. File compression utilities can reduce the file size by as much as:  
(A). 10%      (B). 60%      (C). 80%      (D). 100%
2. Which of the following is a WAN protocol?  
(A). TCP/IP    (B). X:25      (C). IPX/SPX    (D). NetBEUI
3. Which topology is also called a daisy chain?  
(A). Bus        (B). Star        (C). Ring        (D). Hub
4. Which of the following CASE development tools contributes the most to productivity?  
(A). program structure charts      (B). application generators  
(C). program preprocessors        (D). test data generators
5. How many large networks does a class A network support?  
(A). 64        (B). 256        (C). 127        (D). 1024
6. \_\_\_\_\_ is a design tool that shows the logic of the program in a code like fashion.  
(A). Pseudocode    (B). Flowchart    (C). Structure chart    (D). Control chart
7. Double Data Rate SDRAM (DDR SDRAM) chips are even faster than SDRAM chips because they \_\_\_\_\_.  
(A). transfer data twice for each clock cycle  
(B). are synchronized to the system clock  
(C). do not have to be re-energized as often  
(D). use pipelining techniques



8. Two popular platforms for building and running \_\_\_\_\_ are the Sun Microsystems J2EE platform and the Microsoft .NET platform.
- (A). data warehouses                      (B). Web services  
(C). workflow applications              (D). artificial intelligence
9. The speed that a monitor redraws images on the screen is called \_\_\_\_\_.
- (A). refresh frequency                      (B). vertical frequency rate  
(C). frequency rate                      (D). refresh rate
10. The six steps of the program development life cycle are: analyze requirements, design the solution, \_\_\_\_\_, implement the design, test the solution, and document the solution.
- (A). filter programs                      (B). validate the design  
(C). pilot programs                      (D). involve users
11. Which daemon allows Linux to share its file systems and printers with unmodified Windows clients?
- (A). nmbd                      (B). smbdc                      (C). WINS                      (D). NFS
12. In Linux system, you issue the command jobs and receive the following output:
- [1]- Stopped (tty output) top  
[2]+ Stopped (tty output) MyScript
- How would you bring the MyScript process to the foreground?
- (A). fg %2 .                      (B). ctrl-c                      (C). fg MyScript                      (D). ctrl-z
13. The most commonly used method of distributed access control is called \_\_\_\_\_.
- (A). token passing                      (B). client / server  
(C). Carrier Sense Multiple Access / Collision Detect  
(D). Transmission Control Protocol /Internet Protocol



14. 何種資料庫架構是將管理及存取資料的工作集中由大型主機管理，使用者端並無任何處理能力，只能從大型主機中取得？
- (A). 單機架構 (B). 主從式架構  
(C). 分散式架構 (D). 大型主機／終端機架構
15. 下列何者非資料庫管理系統應具備的基本功能？
- (A). 資料定義 (B). 資料處理 (C). 儲存資料 (D). 維護效能
16. 在資料表中，除去主鍵中的各欄位相依於其他非主鍵的欄位，是屬於正規化中的第幾階段？
- (A). 1NF (B). 2NF (C). 3NF (D). BCNF
17. UNC 路徑 (Universal Naming Convention) 其格式應為：
- (A). \\分享名稱\伺服器名稱\路徑\檔名 (B). \\伺服器名稱\路徑\分享名稱\檔名  
(C). \\伺服器名稱\分享路徑名稱\檔名 (D). \\伺服器名稱\檔名\分享名稱\路徑
18. 關於 Access 在 WWW 上的應用中，下列何者不是 Access 可以輸出的檔案格式？
- (A). HTML (B). DHTML (C). ASP (D). HTX/IDC
19. 下列關於防火牆之敘述何者正確？
- (A). 封包過濾可以過濾封包與應用程式，是防火牆技術中最安全的一種技術  
(B). 代理應用閘通道可支援所有的應用程式，過多的資料交換，造成執行效率不佳  
(C). 多階層狀態檢查結合封包過濾與代理應用閘通道兩者的優點  
(D). 以上皆是
20. 下列有關 Cache Memory 之敘述何者正確？
- (A). 是一種 SRAM 記憶體 (B). CPU 將執行程式時不常用資料擱置在此  
(C). 其實它是一種韌體(Firmware) (D). 它存取資料的速度比 DRAM 慢





28. 關於下列敘述何者正確：

- ㄅ. 圖書館實施圖書典藏工作是屬於資訊數位化
- ㄆ. 銀行提款機領錢是屬於管理資訊系統
- ㄇ. 台鐵網路訂票系統是屬於管理資訊系統
- ㄏ. 在電腦裡 Office XP 中的「Office 小幫手」是屬於專家系統

(A). ㄅㄆㄇㄏ      (B). ㄆㄇ      (C). ㄇㄏ      (D). ㄅㄇㄏ

29. 在 ASCII 碼中"B"符號之十進位值為 66，若使用偶同位檢查，則其同位位元為

(A). 0      (B). 1      (C). -1      (D). 以上皆非

30. 使用 DMA 控制器時，通常需要設定一些暫存器的初值，這些動作稱為初值設定程序。下列何者不為初值設定程序中的動作：

- (A). 設定位址暫存器
- (B). 設定位元組計數器
- (C). 啟動中斷要求線
- (D). 設定啟動位元

三、簡答題：10%

1. 請將  $A * (B+C) - D$  建構為運算式樹。(4%)

所謂運算式樹 (expression tree) 必須滿足下列條件：

- 樹葉節點為運算元，而樹根與非樹葉節點為運算子
- 子樹為子運算式且其樹根為運算子

2. 請寫出運算式  $A + B / C - D * 3 + E$  的前序表示法與後序表示法。(6%)

【試題結束】



- 一、假設  $A=8$ 、 $B=6$ 、 $C=4$ 、 $D=2$ ，試利用堆疊(Stack)結構計算  $A - 6 + (B - D) * 4 / (C * 2)$  之值？並畫出計算過程中堆疊(Stack)每個步驟的變化過程。  
(10%)
- 二、假設有一多項式  $F(x, y, z) = 10xy^2 - 5xz^3 + 3y^2z^6 - xyz$ ，試為此多項式設計電腦的儲存方式，並畫出其儲存結果。  
(10%)
- 三、試寫出 Height Balanced Binary Trees 的定義？並說明此種資料結構可以應用在哪裡？  
(10%)
- 四、試說明 2-Way Merge Sort 在排序時平均所花時間為何？  
(10%)
- 五、假設有一集合  $S$  內有  $n$  個元素，試利用遞迴方式寫出產生集合  $S$  所有子集合的演算法。  
(10%)
- 六、若字母  $a, b, c, d, e, f$  出現機率分別為  $0.1, 0.1, 0.2, 0.3, 0.1, 0.2$ ，試以 Huffman 的方式對字母  $a, b, c, d, e, f$  編碼。  
(10%)
- 七、在搜尋法中有所謂的序列搜尋(linear searching)，二元搜尋(binary searching)和雜湊法(hashing)，試問你(妳)將以那些標準來挑選這些搜尋法？  
(10%)
- 八、試寫出計算二元樹節點數及其高度的演算法。  
(15%)
- 九、假設有一雙佇列(double ended queue)，試寫出將一個元素加入雙佇列的任何一端中及由雙佇列的任何一端中取出一個元素之演算法。  
(15%)



## 一、解釋名詞：(20%)

- a. MMS
- b. BLOG
- c. EAI
- d. RFID

## 二、申論題：(80%)

- a. 下列第一題為必選題，二、三、四、五題任選二題，多答不計分。
- b. 作答時，請註明原題號。

1. 何謂 CMMI？資訊產業是否需要導入 CMMI？為什麼需要導入 CMMI？應該如何導入 CMMI？(20%)
2. 法蘭西斯·康洛絲英國《經濟學人》雜誌企管總編輯在其著作《下一代企業：未來企業存活的10個關鍵法則》，她認為網路與資訊科技已經徹底改變了企業的經營本質，根本扭轉了上一代企業的生存法則。她在書中具體分析了網際網路的發展如何深刻地改變企業結構及商業模式，也指出管理者所需要的新領導技能，包括：如何聘雇、激勵和管理人才、如何滿足最佳客戶的需要、如何「開除」無利可圖的客戶、如何與不同的夥伴們建立合作結盟、如何管理與供應商、客戶及員工及如何培養開放和學習的文化等等。書中所提出的十個下一代企業生存的關鍵法則，將有助領導者妥善處理在網路化世界中所遭遇到的種種挑戰。試以資訊經理人(CIO)的角度，探討未來企業存活的五大關鍵法則為何？請並分別加以論述。(30%)
3. 請從下列經專家研究會導致 Information Technology 專案失敗的因素中找出三個主要因素？(10%) 並說明你的選擇？可以實例佐證。(20%)
  - Changing requirements and specifications
  - Incomplete requirements and specifications
  - Lack of user input
  - Lack of executive support
  - Lack of resource
  - New technology
  - Technology incompetence
  - Unrealistic expectations
  - Unrealistic time frame
  - Unclear objectives
4. 請說明什麼是軟體系統的利害關係人(Stakeholders)？(5%) 請以實例說明利害關係人應包含哪些人？(10%) 為什麼包含這些人？(15%)
5. 在資訊科技已成為企業策略不可或缺的要害，資訊長(CIO)的重要性也就越來越高。在資訊長輩出的時代，許多成功的企業背後，都有一位獨具風格的資訊長。試問資訊長(CIO)應如何成功地使用資訊科技，改進企業經營的績效，增強企業的競爭能力，解除經營困境與瓶頸，成功轉移企業的經營態勢？(30%)