考試科目	統計學	系所別	財政學系	考試時間	2 月 5 日(四) 第 4 節

說明：

- 作答時請完整列出過程，評分同時考量答案完整性及正確性
- 查表過程中，若本試題所提供之統計附表無對應數值，請使用最接近之查表數值代替。

Question 1 (15%)

Let X and Y be two random variables representing monthly asset returns for two assets. You are given the following summary statistics:

- Sample Variance of X: $S_x^2 = 4$
- Sample Variance of Y: $S_y^2 = 9$
- Sample Covariance: $S_{XY} = -3$

a) (7%) Compute the Pearson correlation coefficient (r_{xy}) between X and Y.

b) (8%) An analyst proposes a linear transformation of the original variables to account for leverage and fees. The new variables are defined as:

$$W = 3X + 5$$
$$Z = -2Y + 1$$

Derive the value of the covariance between W and Z (i.e., S_{wz}).

Question 2 (20%)

You are advising a regulator on the solvency of a bank. Let S denote "Solvent" and I denote "Insolvent". Based on historical market data, the prior probability of the bank being Insolvent is $P(I) = 0.05$.

You have access to two distinct, conditionally independent auditing algorithms: Audit A and Audit B. If the bank is Insolvent, Audit A flags it positive (A^+) with probability 0.90. If the bank is Solvent, Audit A flags it positive (A^+) with probability 0.10. If the bank is Insolvent, Audit B flags it positive (B^+) with probability 0.80. If the bank is Solvent, Audit B flags it positive (B^+) with probability 0.05.

a) (6%) Suppose Audit A returns a positive flag (A^+). Calculate the posterior probability that the bank is **Insolvent**.

b) (8%) After observing the positive result from Audit A in (a), you run Audit B and it also returns a positive flag (B^+). Update your posterior probability that the bank is **Insolvent** after this observation.

c) (6%) The regulator considers intervening. Intervention incurs costs $\boldsymbol{C}$. If the bank is truly Insolvent, intervention prevents a financial loss $\boldsymbol{L}$. If the bank is Solvent, intervention provides no benefit.

- Express the condition under which the regulator should intervene in terms of the posterior probability of insolvency, π^*, and the ratio $\boldsymbol{C/L}$.
- Based on your answer in (b), if the potential loss $\boldsymbol{L}$ is **3 times** the cost of intervention $\boldsymbol{C}$, should the regulator intervene?

備註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。

考試科目	統計學	系所別	財政學系	考試時間	2 月 5 日(四) 第 4 節

Question 3 (20%)

A Public Health Department is evaluating compliance with a new "Sugar Tax" regulation. Based on preliminary data, the probability that a randomly selected retailer is non-compliant is 20%.

You randomly select a sample of $n = 100$ retailers for inspection. Let X denote the number of non-compliant retailers in your sample.

a) (5%) State the expected value and the variance of the random variable X.

b) (5%) Write the expression for the probability of finding exactly 25 non-compliant retailers using the Binomial PMF. (You do not need to compute the final decimal value).

c) (5%) Use the Normal Approximation to estimate the probability that the number of non-compliant retailers is strictly greater than 25 (i.e., $P(X > 25)$). Is this approximation appropriate given the sample size and proportion? Briefly explain.

d) (5%) A junior analyst suggests that if the sample size were extremely large $(n \to \infty)$ and the probability of non-compliance were extremely small $(p \to 0)$ such that np remained constant, a different distribution should be used. Which distribution is the analyst referring to?

Question 4 (20%)

A public agency pilots three training programs for unemployed workers: Program A, Program B, and Program C. The outcome is post-training monthly earnings (in ten-thousand dollars). Independent samples of participants were selected from each program.

You observe the following summary statistics:

Program	Sample Size	Sample Mean	Sample Variance
A	4	2.1	0.36
B	4	2.6	0.49
C	4	1.9	0.25

a) (12%) Construct an ANOVA table to partition the variance in monthly earnings.

b) (8%) Conduct an F-test at the 5% level. Based on the results, what can you conclude about the relative effectiveness of these programs?

備註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。

考試科目	統計學	系所別	財政學系	考試時間	2 月 5 日(四) 第 4 節

Question 5 (25%)

You study whether household annual consumption expenditure Y_i (in thousands of dollars) is related to household disposable income X_i (in thousands of dollars) using a cross-sectional survey of $n = 50$ households. You estimate the OLS regression with an intercept:

$$Y_i = \beta_0 + \beta_1 X_i + u_i, \quad i = 1, \ldots, 50$$

Assume the observations are independent, and the error term (u_i) is homoskedastic and normally distributed.

From the regression output and sample summaries:

- $R^2 = 0.36$
- Sample standard deviation of X: $s_X = 2$
- Sample standard deviation of Y: $s_Y = 3$

a) (5%) Provide an interpretation of the R^2 value.

b) (7%) Suppose X and Y are positively correlated. Calculate the OLS estimate, $\widehat{\beta_1}$.

c) (8%) Compute the standard error of $\widehat{\beta_1}$.

d) (5%) Test the statistical significance of $\widehat{\beta_1}$ at the 5% significance level.

備註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。

考試科目	統計學	系所別	財政學系	考試時間	2 月 5 日(四) 第 4 節

Cumulative Probabilities for Standard Normal Distribution

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
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

備註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。

考試科目	統計學	系所別	財政學系	考試時間	2 月 5 日(四) 第 4 節

Student's t-Distribution

Degrees of Freedom	Area in Upper Tail 0.2	0.1	0.05	0.025	0.01	0.005	Degrees of Freedom	Area in Upper Tail 0.2	0.1	0.05	0.025	0.01	0.005
1	1.376	3.078	6.314	12.706	31.821	63.657	51	0.849	1.298	1.675	2.008	2.402	2.676
2	1.061	1.886	2.920	4.303	6.965	9.925	52	0.849	1.298	1.675	2.007	2.400	2.674
3	0.978	1.638	2.353	3.182	4.541	5.841	53	0.848	1.298	1.674	2.006	2.399	2.672
4	0.941	1.533	2.132	2.776	3.747	4.604	54	0.848	1.297	1.674	2.005	2.397	2.670
5	0.920	1.476	2.015	2.571	3.365	4.032	55	0.848	1.297	1.673	2.004	2.396	2.668
6	0.906	1.440	1.943	2.447	3.143	3.707	56	0.848	1.297	1.673	2.003	2.395	2.667
7	0.896	1.415	1.895	2.365	2.998	3.499	57	0.848	1.297	1.672	2.002	2.394	2.665
8	0.889	1.397	1.860	2.306	2.896	3.355	58	0.848	1.296	1.672	2.002	2.392	2.663
9	0.883	1.383	1.833	2.262	2.821	3.250	59	0.848	1.296	1.671	2.001	2.391	2.662
10	0.879	1.372	1.812	2.228	2.764	3.169	60	0.848	1.296	1.671	2.000	2.390	2.660
11	0.876	1.363	1.796	2.201	2.718	3.106	61	0.848	1.296	1.670	2.000	2.389	2.659
12	0.873	1.356	1.782	2.179	2.681	3.055	62	0.847	1.295	1.670	1.999	2.388	2.657
13	0.870	1.350	1.771	2.160	2.650	3.012	63	0.847	1.295	1.669	1.998	2.387	2.656
14	0.868	1.345	1.761	2.145	2.624	2.977	64	0.847	1.295	1.669	1.998	2.386	2.655
15	0.866	1.341	1.753	2.131	2.602	2.947	65	0.847	1.295	1.669	1.997	2.385	2.654
16	0.865	1.337	1.746	2.120	2.583	2.921	66	0.847	1.295	1.668	1.997	2.384	2.652
17	0.863	1.333	1.740	2.110	2.567	2.898	67	0.847	1.294	1.668	1.996	2.383	2.651
18	0.862	1.330	1.734	2.101	2.552	2.878	68	0.847	1.294	1.668	1.995	2.382	2.650
19	0.861	1.328	1.729	2.093	2.539	2.861	69	0.847	1.294	1.667	1.995	2.382	2.649
20	0.860	1.325	1.725	2.086	2.528	2.845	70	0.847	1.294	1.667	1.994	2.381	2.648
21	0.859	1.323	1.721	2.080	2.518	2.831	71	0.847	1.294	1.667	1.994	2.380	2.647
22	0.858	1.321	1.717	2.074	2.508	2.819	72	0.847	1.293	1.666	1.993	2.379	2.646
23	0.858	1.319	1.714	2.069	2.500	2.807	73	0.847	1.293	1.666	1.993	2.379	2.645
24	0.857	1.318	1.711	2.064	2.492	2.797	74	0.847	1.293	1.666	1.993	2.378	2.644
25	0.856	1.316	1.708	2.060	2.485	2.787	75	0.846	1.293	1.665	1.992	2.377	2.643
26	0.856	1.315	1.706	2.056	2.479	2.779	76	0.846	1.293	1.665	1.992	2.376	2.642
27	0.855	1.314	1.703	2.052	2.473	2.771	77	0.846	1.293	1.665	1.991	2.376	2.641
28	0.855	1.313	1.701	2.048	2.467	2.763	78	0.846	1.292	1.665	1.991	2.375	2.640
29	0.854	1.311	1.699	2.045	2.462	2.756	79	0.846	1.292	1.664	1.990	2.374	2.640
30	0.854	1.310	1.697	2.042	2.457	2.750	80	0.846	1.292	1.664	1.990	2.374	2.639
31	0.853	1.309	1.696	2.040	2.453	2.744	81	0.846	1.292	1.664	1.990	2.373	2.638
32	0.853	1.309	1.694	2.037	2.449	2.738	82	0.846	1.292	1.664	1.989	2.373	2.637
33	0.853	1.308	1.692	2.035	2.445	2.733	83	0.846	1.292	1.663	1.989	2.372	2.636
34	0.852	1.307	1.691	2.032	2.441	2.728	84	0.846	1.292	1.663	1.989	2.372	2.636
35	0.852	1.306	1.690	2.030	2.438	2.724	85	0.846	1.292	1.663	1.988	2.371	2.635
36	0.852	1.306	1.688	2.028	2.434	2.719	86	0.846	1.291	1.663	1.988	2.370	2.634
37	0.851	1.305	1.687	2.026	2.431	2.715	87	0.846	1.291	1.663	1.988	2.370	2.634
38	0.851	1.304	1.686	2.024	2.429	2.712	88	0.846	1.291	1.662	1.987	2.369	2.633
39	0.851	1.304	1.685	2.023	2.426	2.708	89	0.846	1.291	1.662	1.987	2.369	2.632
40	0.851	1.303	1.684	2.021	2.423	2.704	90	0.846	1.291	1.662	1.987	2.368	2.632
41	0.850	1.303	1.683	2.020	2.421	2.701	91	0.846	1.291	1.662	1.986	2.368	2.631
42	0.850	1.302	1.682	2.018	2.418	2.698	92	0.846	1.291	1.662	1.986	2.368	2.630
43	0.850	1.302	1.681	2.017	2.416	2.695	93	0.846	1.291	1.661	1.986	2.367	2.630
44	0.850	1.301	1.680	2.015	2.414	2.692	94	0.845	1.291	1.661	1.986	2.367	2.629
45	0.850	1.301	1.679	2.014	2.412	2.690	95	0.845	1.291	1.661	1.985	2.366	2.629
46	0.850	1.300	1.679	2.013	2.410	2.687	96	0.845	1.290	1.661	1.985	2.366	2.628
47	0.849	1.300	1.678	2.012	2.408	2.685	97	0.845	1.290	1.661	1.985	2.365	2.627
48	0.849	1.299	1.677	2.011	2.407	2.682	98	0.845	1.290	1.661	1.984	2.365	2.627
49	0.849	1.299	1.677	2.010	2.405	2.680	99	0.845	1.290	1.660	1.984	2.365	2.626
50	0.849	1.299	1.676	2.009	2.403	2.678	100	0.845	1.290	1.660	1.984	2.364	2.626

備註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。

考試科目	統計學	系所別	財政學系	考試時間	2 月 5 日(四) 第 4 節

F-Distribution

Denominator Degrees of freedom	Area in Upper Tail	Numerator Degrees of Freedom													
		1	2	3	4	5	6	7	8	9	10	15	20	25	30
1	0.100	39.86	49.50	53.59	55.83	57.24	58.20	58.91	59.44	59.86	60.19	61.22	61.74	62.05	62.26
	0.050	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54	241.88	245.95	248.01	249.26	250.10
	0.025	647.79	799.50	864.16	899.58	921.85	937.11	948.22	956.66	963.28	968.63	984.87	993.10	998.08	1001.41
	0.010	4052.18	4999.50	5403.35	5624.58	5763.65	5858.99	5928.36	5981.07	6022.47	6055.85	6157.28	6208.73	6239.83	6260.65
2	0.100	8.53	9.00	9.16	9.24	9.29	9.33	9.35	9.37	9.38	9.39	9.42	9.44	9.45	9.46
	0.050	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.40	19.43	19.45	19.46	19.46
	0.025	38.51	39.00	39.17	39.25	39.30	39.33	39.36	39.37	39.39	39.40	39.43	39.45	39.46	39.46
	0.010	98.50	99.00	99.17	99.25	99.30	99.33	99.36	99.37	99.39	99.40	99.43	99.45	99.46	99.47
3	0.100	5.54	5.46	5.39	5.34	5.31	5.28	5.27	5.25	5.24	5.23	5.20	5.18	5.17	5.17
	0.050	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.70	8.66	8.63	8.62
	0.025	17.44	16.04	15.44	15.10	14.88	14.73	14.62	14.54	14.47	14.42	14.25	14.17	14.12	14.08
	0.010	34.12	30.82	29.46	28.71	28.24	27.91	27.67	27.49	27.35	27.23	26.87	26.69	26.58	26.50
4	0.100	4.54	4.32	4.19	4.11	4.05	4.01	3.98	3.95	3.94	3.92	3.87	3.84	3.83	3.82
	0.050	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.86	5.80	5.77	5.75
	0.025	12.22	10.65	9.98	9.60	9.36	9.20	9.07	8.98	8.90	8.84	8.66	8.56	8.50	8.46
	0.010	21.20	18.00	16.69	15.98	15.52	15.21	14.98	14.80	14.66	14.55	14.20	14.02	13.91	13.84
5	0.100	4.06	3.78	3.62	3.52	3.45	3.40	3.37	3.34	3.32	3.30	3.24	3.21	3.19	3.17
	0.050	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.62	4.56	4.52	4.50
	0.025	10.01	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68	6.62	6.43	6.33	6.27	6.23
	0.010	16.26	13.27	12.06	11.39	10.97	10.67	10.46	10.29	10.16	10.05	9.72	9.55	9.45	9.38
6	0.100	3.78	3.46	3.29	3.18	3.11	3.05	3.01	2.98	2.96	2.94	2.87	2.84	2.81	2.80
	0.050	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	3.94	3.87	3.83	3.81
	0.025	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52	5.46	5.27	5.17	5.11	5.07
	0.010	13.75	10.92	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.56	7.40	7.30	7.23
7	0.100	3.59	3.26	3.07	2.96	2.88	2.83	2.78	2.75	2.72	2.70	2.63	2.59	2.57	2.56
	0.050	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.51	3.44	3.40	3.38
	0.025	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.82	4.76	4.57	4.47	4.40	4.36
	0.010	12.25	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.31	6.16	6.06	5.99
8	0.100	3.46	3.11	2.92	2.81	2.73	2.67	2.62	2.59	2.56	2.54	2.46	2.42	2.40	2.38
	0.050	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.22	3.15	3.11	3.08
	0.025	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36	4.30	4.10	4.00	3.94	3.89
	0.010	11.26	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.52	5.36	5.26	5.20
9	0.100	3.36	3.01	2.81	2.69	2.61	2.55	2.51	2.47	2.44	2.42	2.34	2.30	2.27	2.25
	0.050	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.01	2.94	2.89	2.86
	0.025	7.21	5.71	5.08	4.72	4.48	4.32	4.20	4.10	4.03	3.96	3.77	3.67	3.60	3.56
	0.010	10.56	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26	4.96	4.81	4.71	4.65
10	0.100	3.29	2.92	2.73	2.61	2.52	2.46	2.41	2.38	2.35	2.32	2.24	2.20	2.17	2.16
	0.050	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.85	2.77	2.73	2.70
	0.025	6.94	5.46	4.83	4.47	4.24	4.07	3.95	3.85	3.78	3.72	3.52	3.42	3.35	3.31
	0.010	10.04	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85	4.56	4.41	4.31	4.25
11	0.100	3.23	2.86	2.66	2.54	2.45	2.39	2.34	2.30	2.27	2.25	2.17	2.12	2.10	2.08
	0.050	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.72	2.65	2.60	2.57
	0.025	6.72	5.26	4.63	4.28	4.04	3.88	3.76	3.66	3.59	3.53	3.33	3.23	3.16	3.12
	0.010	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.25	4.10	4.01	3.94
12	0.100	3.18	2.81	2.61	2.48	2.39	2.33	2.28	2.24	2.21	2.19	2.10	2.06	2.03	2.01
	0.050	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.62	2.54	2.50	2.47
	0.025	6.55	5.10	4.47	4.12	3.89	3.73	3.61	3.51	3.44	3.37	3.18	3.07	3.01	2.96
	0.010	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.01	3.86	3.76	3.70
13	0.100	3.14	2.76	2.56	2.43	2.35	2.28	2.23	2.20	2.16	2.14	2.05	2.01	1.98	1.96
	0.050	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.53	2.46	2.41	2.38
	0.025	6.41	4.97	4.35	4.00	3.77	3.60	3.48	3.39	3.31	3.25	3.05	2.95	2.88	2.84
	0.010	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10	3.82	3.66	3.57	3.51
14	0.100	3.10	2.73	2.52	2.39	2.31	2.24	2.19	2.15	2.12	2.10	2.01	1.96	1.93	1.91
	0.050	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.46	2.39	2.34	2.31
	0.025	6.30	4.86	4.24	3.89	3.66	3.50	3.38	3.29	3.21	3.15	2.95	2.84	2.78	2.73
	0.010	8.86	6.51	5.56	5.04	4.69	4.46	4.28	4.14	4.03	3.94	3.66	3.51	3.41	3.35
15	0.100	3.07	2.70	2.49	2.36	2.27	2.21	2.16	2.12	2.09	2.06	1.97	1.92	1.89	1.87
	0.050	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.40	2.33	2.28	2.25
	0.025	6.20	4.77	4.15	3.80	3.58	3.41	3.29	3.20	3.12	3.06	2.86	2.76	2.69	2.64
	0.010	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.52	3.37	3.28	3.21
16	0.100	3.05	2.67	2.46	2.33	2.24	2.18	2.13	2.09	2.06	2.03	1.94	1.89	1.86	1.84
	0.050	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.35	2.28	2.23	2.19
	0.025	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05	2.99	2.79	2.68	2.61	2.57
	0.010	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.41	3.26	3.16	3.10
17	0.100	3.03	2.64	2.44	2.31	2.22	2.15	2.10	2.06	2.03	2.00	1.91	1.86	1.83	1.81
	0.050	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.31	2.23	2.18	2.15
	0.025	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06	2.98	2.92	2.72	2.62	2.55	2.50
	0.010	8.40	6.11	5.18	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.31	3.16	3.07	3.00
18	0.100	3.01	2.62	2.42	2.29	2.20	2.13	2.08	2.04	2.00	1.98	1.89	1.84	1.80	1.78
	0.050	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.27	2.19	2.14	2.11
	0.025	5.98	4.56	3.95	3.61	3.38	3.22	3.10	3.01	2.93	2.87	2.67	2.56	2.49	2.44
	0.010	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51	3.23	3.08	2.98	2.92
19	0.100	2.99	2.61	2.40	2.27	2.18	2.11	2.06	2.02	1.98	1.96	1.86	1.81	1.78	1.76
	0.050	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.23	2.16	2.11	2.07
	0.025	5.92	4.51	3.90	3.56	3.33	3.17	3.05	2.96	2.88	2.82	2.62	2.51	2.44	2.39
	0.010	8.18	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43	3.15	3.00	2.91	2.84
20	0.100	2.97	2.59	2.38	2.25	2.16	2.09	2.04	2.00	1.96	1.94	1.84	1.79	1.76	1.74
	0.050	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35	2.20	2.12	2.07	2.04
	0.025	5.87	4.46	3.86	3.51	3.29	3.13	3.01	2.91	2.84	2.77	2.57	2.46	2.40	2.35
	0.010	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46	3.37	3.09	2.94	2.84	2.78

備註

一、 作答於試題上者，不予計分。
二、 試題請隨卷繳交。